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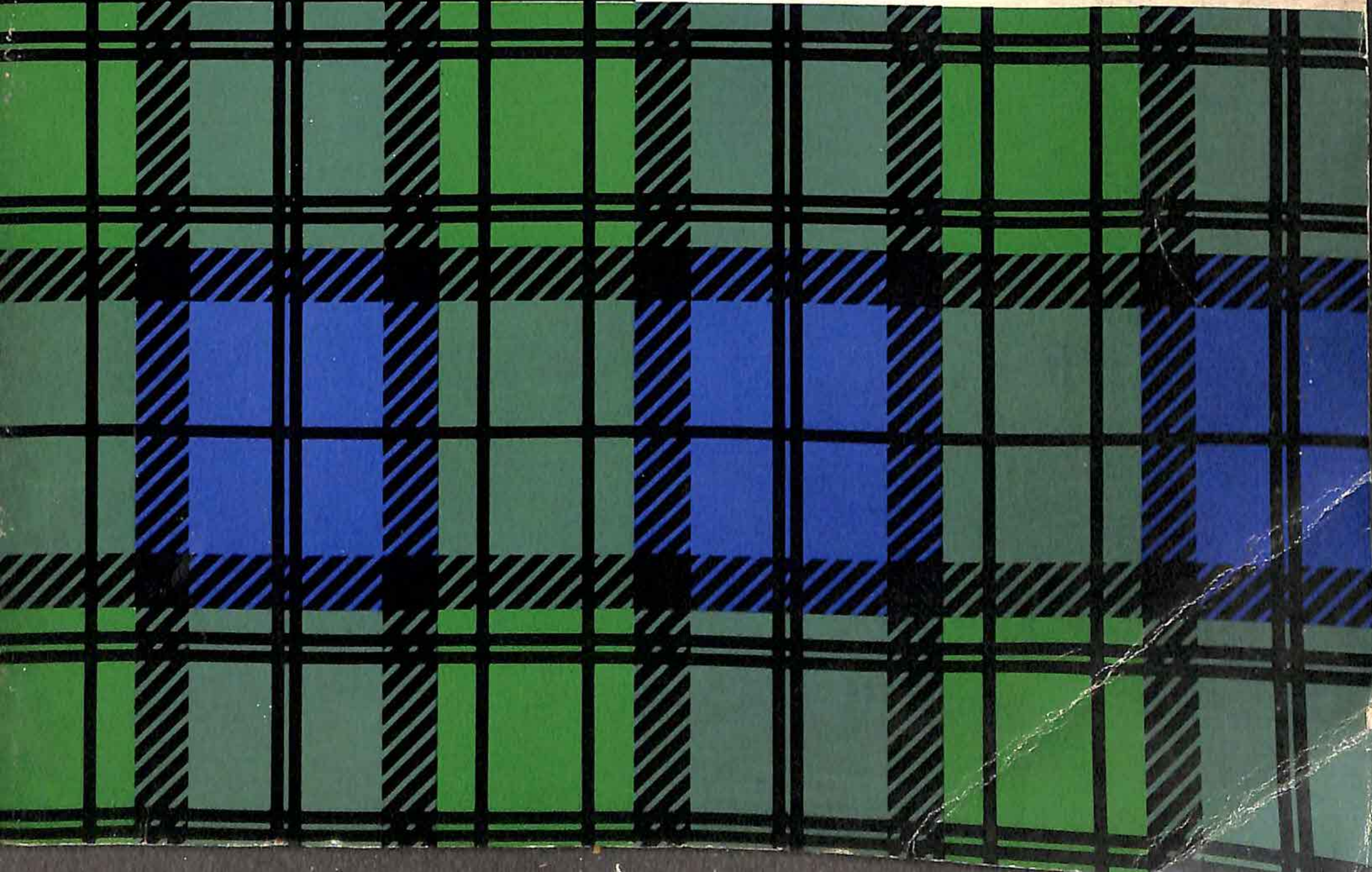

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Programmed Learning Aid for

DEVELOPMENTAL PSYCHOLOGY

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Programmed Learning Aid for

DEVELOPMENTAL PSYCHOLOGY

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FOREWORD

Each of the books comprising the Programmed Learning Aid Series is in programmed learning format to provide the reader with a quick, efficient, and effective means of grasping the essential subject matter. The specific benefits of the programmed method of presentation are as follows:

1. It keeps the reader *active* in the learning process and increases his comprehension level.
2. Incorrect responses are *corrected immediately.*
3. Correct responses are *reinforced immediately.*
4. The method is *flexible.* Those who need more "tutoring" receive it because they are encouraged to reread frames in which they have missed any of the questions asked.
5. The method is *fun* to use since it makes learning seem like a game.

The method of programming used in this PLAID on developmental psychology and in most of the other PLAIDs is unique and simple to use. The reader begins by reading Frame 1^1 in Chapter 1. At the end of that frame he will answer the True-False questions given. To determine the correctness of his responses he merely turns the page and examines the answers given in Answer Frame 1^1. He is told *why* each statement is true or false. He should use his performance on the questions given as a measure of his understanding of all the materials in Frame 1^1. If he misses any of the questions asked, he is encouraged to reread Frame 1^1 before continuing on to Frame 2^1. This same procedure should be used throughout. Specific instructions are given throughout as to where to turn next to continue working the program.

The reader may desire to go through the PLAID a second time leaving out the programming questions and answers. Or he may desire to further test his understanding by going through it a second time answering all of the questions once again and rereading only those frames in which his comprehension is unsatisfactory.

Hiram E. Fitzgerald, one of the authors of this PLAID on developmental psychology, is an associate professor of psychology at Michigan State University. He is coeditor of *Developmental Psychology: Studies in Human Development* and has published research papers in the areas of infant learning and perception, infant day care, developmental psychophysiology, and children's learning. His teaching experiences include courses in child psychology, infant care and development, research methods in developmental psychology, and graduate seminars in developmental psychophysiology and biorhythms.

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ROGER H. HERMANSON
Coordinating Editor and Programmer

PREFACE

This programmed learning aid was designed to supplement any child development text. It provides a concise yet comprehensive review of psychological development from conception through adolescence. Nevertheless, the student should bear in mind that this PLAID is but an aid to facilitate learning the vast literature that has accumulated regarding human development. It should not be viewed as a replacement for the basic exhaustive textbook in developmental psychology or in child development. We have included the basic concepts, theories, methods, and content of developmental psychology which together with the programmed format of the PLAID should be especially helpful to those students taking their first course in child development.

Three examinations complete with answers in combination with the programmed review questions will facilitate self-testing for mastery of the material. The index directs the student to the many terms of developmental psychology as well as to the specific topics included in the PLAID.

The field of developmental psychology, having its origins in child psychology or child development, is one of the most rapidly growing fields of scientific psychology. It is our hope that we have provided the student with a useful educational resource for implementing mastery of the necessarily more comprehensive information contained in his basic text.

We would like to express a special note of thanks to Elaine Donelson for her critical reading of an earlier draft of this manuscript, and to Shirley Arthur for her typing assistance.

HIRAM E. FITZGERALD
ELLEN STROMMEN

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chapter 1

CONCEPTS AND METHODS IN DEVELOPMENTAL PSYCHOLOGY

Frame 1[1]

Developmental psychology is the study of behavior from conception to death. That is, developmental psychology is concerned with the study of the organism through its life-span. As a distinct field, developmental psychology is a relatively recent addition to the family of specializations within psychology. Nevertheless, the developmental approach has a rich ancestry. In this chapter we will examine the concepts, historical origins, objectives, issues, and methods that give definition to this increasingly prominent area of psychology.

Concepts of development. The earliest concepts of development were those advanced in the biological sciences. *Preformation, pangenesis,* and *acquired characteristics* were among early theories that to one degree or another dealt with genetic aspects of behavior and development. According to the doctrine of preformation, the full range of developmental phenomena were contained "preformed" in the sperm and ovum. Since evidence to support these early concepts was largely inferential, they rapidly were discarded as scientists developed increasingly sophisticated methods for direct study of the composition, structure, and function of the human cell.

One of the first concepts of development actively espoused by a psychologist was that advocated by G. Stanley Hall. Hall accepted Darwin's theory that "ontogeny recapitulates phylogeny." In other words, the individual's development (ontogeny) was thought to repeat the various stages of the species' evolutionary history. Hall extended recapitulation theory beyond its original reference to embryologic development to include development through the period of adolescence and to encompass psychological as well as biological phenomena. For example, Hall argued that the period of childhood recapitulated the evolution of human social behavior. In addition to his contributions to developmental theory, Hall established what many consider to be the first professional journal in developmental psychology—first known as the *Pedagogical Seminary* and retitled *The Journal of Genetic Psychology* in 1927.

Today, the prevailing concept of development is that referred to as *epigenesis,* according to which each individual organism develops structures from originally unorganized material. The central notion of epigenesis is that the structures are new for each individual—they are neither a recapitulation of the species nor are they preformed in the reproductive cells.

In addition to the epigenetic concept of development, contemporary developmental psychology embraces the *psychobiological* view of man. According to this point of view, the individual is conceptualized as a biological-psychological system that proceeds developmentally from a less complex level of organization to an increasingly higher level of organization. The system is held to be self-regulating, attempting at all times to maintain stability.

Although epigenesis and psychobiology characterize contemporary developmental psychology, it should be noted that not all developmental psychologists accept these points of view. For example, many developmental psychologists align themselves with the behavioristic tradition, emphasizing environmental influences during the individual's development and the experimental analysis of his behavior.

Indicate whether each of the following statements is true or false by writing "T" or "F" in the space provided.

________1. Developmental psychology is concerned exclusively with the early development of children in a psychobiological sense.

________2. Many of the earliest concepts of development concentrated on the inherited or genetic aspects of behavior.

________3. Today, the prevailing concept of development is that referred to as "epigenesis" which does not emphasize genetic history.

________4. In addition to the epigenetic concept of development, all contemporary psychologists accept the psychobiological view of man.

Now turn to Answer Frame 1[1] on page 4 to check your responses.

Frame 2[1]

Historical origins of developmental psychology. Among the many historical antecedents of developmental psychology, six are singled out here for special consideration. These are *(a)* evolutionary theory, *(b)* quantitative methods of measurement, *(c)* behaviorism, *(d)* cognitive psychology, *(e)* dynamic psychology, and *(f)* clinical psychology.

Evolutionary theory was important in the history of developmental psychology because it provided a potentially unifying theoretical perspective for considering the phylogenetic bonds among the various animal species, and because through it Darwin laid the foundation for observational or naturalistic research methodology. For example, Darwin was among the early authors of baby biographies. Such biographical accounts of natural daily infant behavior continue to serve as one of the most fruitful sources of hypotheses concerning the processes of development.

Advances in *quantification* made by Quetelet and Galton, among others, were significant in the history of developmental assessment as were early measurement devices constructed by Binet, Cattell, and Doll. *Behaviorism* through its emphasis on the association between stimulus and response contingencies focused attention on the importance of environmental influences on behavioral development. Such environmental influences were most radically advocated by John Watson, the founder of American behaviorism. Equally important were the research methods developed by the behaviorists, including the methods of classical conditioning (Pavlov), instrumental conditioning (Thorndike), and operant conditioning (Skinner). *Cognitive* psychology can be traced historically at least to the rationalist philosophers (Descartes and Kant), but more directly to Baldwin's early studies of mental growth. Piaget contributed the idea that mental development occurs in an invariant sequence that can be delineated by the succession of stages through which the individual passes.

Among these historical influences leading to modern developmental psychology, certainly none is more important than the *dynamic theories of personality* stemming from the most influential theory of all, that of Sigmund Freud. Freudian theory stimulated research and considerable controversy concerning such topics as *(a)* the role of instincts in human behavior, *(b)* the structure of the mind and the function of conscious and unconscious processes, *(c)* the stage sequencing of personality development, and *(d)* the various intricate relationships between parents and children which influence personality formation.

In 1896, Witmer established the first psychological clinic for children, thus formally beginning the *child clinical movement*—a movement that is only today beginning to realize its full potential. Shortly after the establishment of Witmer's clinic, child guidance centers appeared at many universities and private foundations. Rather than providing the full range of clinical assessment and therapy characteristic of modern child clinical psychology, these early centers focused primarily on children's educational and/or social difficulties.

Label each of the following statements as true or false.

________1. Evolutionary theory provided the foundation for observational or naturalistic research methodology.

________2. Quantification techniques and the research methods of the behaviorists were significant contributions in the history of developmental psychology.

________3. Freud stimulated much research through his innovative and controversial theories.

________4. Clinical psychology for children has been developed only recently (in the last 30 years or so).

Now turn to Answer Frame 2[1] on page 4 to check your answers.

Frame 3[1]

Objectives of developmental psychology. Foremost among the objectives of developmental psychology is the attempt to discover, through the use of scientific methodology, the significant variables that affect the individual's behavior at all stages of development. This objective includes both the analysis of those variables that have immediate consequences for the individual as well as those that have long-term consequences. Moreover, the developmental psychologist considers the accurate description of the developmental sequences that characterize behavioral change as one of his primary tasks.

Another objective of developmental psychology, stemming from the psychobiological point of view, is to understand *behavior integration.* If one conceptualizes development as the evolution of a variety of subsystems (e.g., sensorimotor, cognitive, language, social, personal), all of which are simultaneously part of the complete, whole individual, then several questions assume paramount importance. How do these systems develop? How do they influence each other and influence the system as a whole? How does the individual move from a state of relative unorganization to higher and higher levels of organization? Finally, developmental psychology shares with all scientific disciplines the goal of constructing theoretical models of development from its empirical data. Unfortunately, many developmental theories were formulated with insufficient data, giving rise to a number of controversial issues that remain unresolved to date.

Issues in developmental psychology. The issues that are of recurrent concern to developmental psychologists are more easily grasped if posed as dichotomies. Among the host of very specific issues, the following are of special importance. *(a)* nature versus nurture explanations of behavior, *(b)*active versus passive views of the individual, and *(c)* unidirectional versus interactive models of development.

The *nature-nurture* issue refers to the problem of where to attribute the origins or causes of behavior. On the one extreme are those who support the nature position, contending that the individual's behavior is directly linked to and controlled by genetic factors. On the other extreme are those who support the nurture position, claiming that one's behavior is solely under the influence of environmental factors. In reality, there are likely very few developmental phenomena that can be attributed solely to hereditary factors or to environmental factors. Increasingly, developmental psychologists are seeking to discover how these two variables interact to influ-

Answer frame 1[1]

1. False. Developmental psychology is concerned with the study of an organism throughout its life-span—it is the study of behavior from conception to death.
2. True. "Preformation," "pangenesis," and "acquired characteristics" were all early theories that stressed genetic aspects of behavior and development. Preformation concepts were based on the idea that the full range of developmental phenomena were "preformed" in the sperm and ovum. Other theories stressed the species' past history.
3. True. The central notion of the widely accepted epigenesis concept is that the structures are new for each individual—they are neither a recapitulation of the species nor are they preformed in the reproductive cells.
4. False. According to the psychobiological view, man is conceptualized as a biological-psychological system that develops from a less complex level of organization to an increasingly complex level. Not all psychologists accept the concepts of epigenesis and psychobiology. For example, many psychologists follow the behaviorists and emphasize environmental influences on man's development.

In each frame an attempt has been made to test the most important concepts. Undoubtedly, this has not been accomplished in every case. Therefore, you should use your performance on the questions given as an indication of your understanding of all the concepts in a frame. If you missed any of the above questions, reread Frame 1[1] before beginning Frame 2[1] on page 2. This same procedure should be used throughout the PLAID.

Answer frame 2[1]

1. True. Darwin's observations of animals and human babies together with other researchers' observational data led to many hypotheses concerning the processes of development.
2. True. Advances in quantification by Quetelet, Galton, and others aided in the study of development. Measurement devices constructed by men such as Binet, Cattell, and Doll added to the progress. Behaviorism and the importance of environmental influences on behavioral development were also important developments. Men such as Watson, Pavlov, Thorndike, and Skinner were great pioneers in this area.
3. True. Freud was a pioneer in examining topics such as the role of instincts in human behavior, the structure of the mind and conscious and unconscious processes, the stages of personality development, and the parent-child relationships which influence personality formation.
4. False. In 1896, Witmer established the first psychological clinic for children. However, the potential of children's clinics has been recognized for only a short period of time.

If you missed any of the above, you should reread Frame 2[1] before turning to Frame 3[1] on page 3.

Frame 3[1] continued

ence behavior. Nevertheless, the nature-nurture issue continues to be debated, especially for the topics of language acquisition and intelligence.

The *active-passive* issue derives ultimately from the philosophical question of free will and determinism. Essentially, this issue concerns the extent to which the individual is perceived as actively participating in the process of his own development. Those who stress the active nature of man lean toward cognitive-organismic interpretations of development, while those who stress the passive view of man lean toward mechanistic-behavioristic interpretations of development.

The *unidirectional-interactive* issue refers to the nature of parent-child relations during development. Historically, such developmental phenomena as socialization were viewed unidirectionally, from parent to child. Thus one's task in the study of child development was to identify the parental antecedents of child behavior; little attention was given to the child as an active participant in his own development. Contemporary developmental psychologists not only accept parent-child interaction models of development, but some authors even suggest that during the early years of development, the child does more to socialize its parents than vice versa.

We will have occasion in the chapters that follow to refer to each of these issues. What the student should keep in mind is that there continue to be developmental psychologists who argue strongly on both sides of these issues.

Is each of the following true or false?

________1. The foremost objective of developmental psychology is to learn how to manipulate human behavior through control of the variables that affect human development at various stages of life.

________2. Developmental psychologists are most concerned with finding the one key variable (social, personal, cognitive, language, etc.) which will explain man's behavior at different stages of development.

________3. Psychologists generally agree that behavior is based more on heredity (genetic factors) than environmental factors.

________4. Many psychologists now view the parent-child relationship as a two-way process, and some even suggest that the child does more to socialize the parent than vice versa.

Now turn to Answer Frame 3^1 on page 6 to check your answers.

Frame 4^1

Research methods in developmental psychology. As noted previously, developmental psychology is the science primarily concerned with the ontogeny of behavior. Moreover, as a science it strives to accumulate a systematic and organized body of knowledge. To reach this goal, developmentalists *(a)* attempt to establish appropriate developmental norms to serve as guidelines for assessment of the individual's rate of development, *(b)* study the relationships among a variety of behavior traits, and *(c)* study the antecedent conditions (independent variables) that give rise to behavior (dependent variables). These research approaches are called *normative, correlational,* and *experimental,* respectively. As research methods, each has a set of minimum requirements that the investigator must meet in order to maximize the quality of scientific data to be gained from the experiment. Table 1.1 summarizes these minimum requirements.

Normative studies provide rich and useful information about the ontogeny of behavior and to a large extent provide the defining characteristics of a species. Through this method, norms for gross-motor development, fine-motor skills, language development, and social-personal behavior have been established.

TABLE 1.1

Summary of requirements for research methods used in developmental psychology

Minimal Requirements	*Research methods*		
	Normative	*Correlational*	*Experimental*
Data collection:			
Standardized	X	X	X
Data recording:			
Immediate	X	X	X
Objective	X	X	X
Reliable	X	X	X
Data analysis:			
Statistical	X	X	X
Research design:			
Group of subjects	X	X	X
Two variables		X	X
One independent and one dependent variable			X
Experimental groups and control groups			X

Note that the important question for the normative study does not deal with the *how* of development, rather it asks *(a) when* a given behavior typically appears during development, or *(b) how much* of a

Answer frame 3¹

1. False. Developmental psychologists hope to discover the significant variables that affect the individual's behavior at all stages of development, but the purpose is not to manipulate human behavior. Rather, the purpose is to understand and describe behavior change.
2. False. Psychologists are more concerned with *behavior integration.* That is, they wish to discover the interaction between the variables that affect behavior. Rather than finding one key influence, psychologists are concerned with exploring many influences and the relations between them.
3. False. The nature-nurture issue is caused by two schools of thought—one which emphasizes genetic factors as the primary influence on behavior and one which emphasizes the environment. Increasingly, developmental psychologists are seeking to discover how these two variables interact to influence behavior.
4. True. The "unidirectional-interactive issue" refers to the nature of parent-child relations during development. Historically, socialization was viewed unidirectionally from parent to child, but contemporary developmental psychologists view the process as a two-way interaction.

If you missed any of the above, you should review Frame 3¹ before turning to Frame 4¹ on page 5.

Frame 4¹ continued

given behavior exists in a given population. Thus, through normative research, we know that sitting unassisted occurs at about six months of age and that roughly 97 percent of all human infants will achieve this developmental milestone between the ages of four and eight months.

Correlational methods are used to gain information about the relationship among various psychological phenomena. Two psychological processes may be highly related or may be independent of each other. Correlational methods are used to study the degree of relationship between the two processes. As we shall see in subsequent chapters, correlational methods have been employed to study the relationships among such variables as intelligence and creativity, body build and personality traits, test scores and academic achievement, parental acceptance-rejection and dependency needs in children, parental value orientations and those of their children. An important point to remember about correlational methods is that they point to the fact that process A is related to process B. They do not provide a direct test of the cause-effect relation between the two processes. To test for causal relations, experimental methods are more commonly employed.

Experimental methodology is the foundation of the scientific analysis of behavior. In experimental methodology the experimenter actually manipulates some aspect of the environmental situation and studies the effect his manipulation has on the individual's behavior in that situation. Of the many specific experimental procedures, three deserve special mention because of their wide use in child development research. These procedures are referred to as *habituation, classical conditioning,* and *operant conditioning.*

True or false?

_______1. To accumulate a systematic and organized body of knowledge, developmentalists use three research approaches called normative, correlational, and experimental.

_______2. The normative approach to understanding behavior tries to answer the question of *how* development progresses.

_______3. Correlation approaches provide a direct test of cause-effect relations between two variables.

_______4. The experimental method attempts to get cause-effect relationships.

Now turn to Answer Frame 4¹ on page 8 to check your answers.

Frame 5[1]

Habituation is the method used to investigate the effects of repeatedly experiencing the same stimulus on the subject's response to that stimulus. Through the work of Pavlov, and more recently that of Soklov, we know that when an individual is exposed to a novel stimulus he orients to that stimulus. This *orienting response* (OR) is composed of behavioral and physiological components. For example, one might turn one's head toward the source of a sound, while simultaneously one's heart rate slows down. It is thought that such orienting behavior is related to one's ability to pay attention to external stimulation. If the sound were to be presented repeatedly, we gradually cease to orient to it, or at least our orienting becomes less marked. It is this gradual decline in orienting that defines the process of habituation. Habituation is a particularly useful procedure for studying nonverbal organisms' responses to sensory stimulation.

Classical conditioning methodology was developed by I. P. Pavlov, the noted Russian physiologist. In classical conditioning one wishes to establish an association between two stimuli so that both stimuli have the power to *elicit* essentially the same response. However, only one of the stimuli originally elicits the response. This stimulus is the *unconditional stimulus* (UCS), and the response it elicits is the *unconditioned response* (UCR). Thus, a puff of air on the eye elicits an eyeblink, a change in illumination elicits a change in the size of the pupil, and a nipple placed in an infant's mouth elicits sucking. The other stimulus, the *conditional stimulus* (CS), acquires its elicitation properties only through its paired association with the UCS. When the CS acquires eliciting properties, the response it elicits is called a *conditioned response* (CR). Acquisition of a CR is dependent upon a variety of factors including the time intervening between the occurrence of the CS and UCS, the number of CS-UCS pairings, and the relative strength of *competing responses.*

After a conditioned response has been established it may then be extinguished. Procedurally, *experimental extinction* refers to repeated presentations of the CS alone, that is, without the UCS. When this is done the CR gradually disappears. Oftentimes a CS that has acquired stimulus value is used functionally as a UCS. This procedure is employed when the investigator wishes to study *higher order conditioned responses.* Although classical conditioning methodology has been used to investigate a wide range of learning phenomena with adult subjects, its most recent application in developmental psychology has been in the area of infant learning.

True or false?

_______1. Habituation is the method used to investigate the effects of repeatedly experiencing the same stimulus on the subject's response to that stimulus.

_______2. In classical conditioning one wishes to establish an association between two stimuli so that both stimuli have the power to elicit essentially the same response.

_______3. When the conditional stimulus of classical conditioning elicits a response, the response is called a conditioned response (CR).

_______4. The term "higher order conditioned responses" refers to repeated presentations of the conditional stimulus alone (without UCS). This results in higher order conditioning.

Now turn to Answer Frame 5[1] on page 8 to check your answers.

Answer frame 4[1]

1. True. Developmentalists attempt to establish appropriate developmental norms to serve as guidelines for assessing rate of development (normative approach); they study the relationships among a variety of behavior traits (correlation approach); and they study the antecedent conditions that give rise to behavior (experimental approach).
2. False. Normative study is not concerned with *why* but *when* a given behavior typically appears during development or *how much* of a given behavior exists in a given population (e.g., how old are children when they first begin to walk?).
3. False. Correlational methods have been used to study the relationship between such variables as intelligence and creativity, body build and personality, and test scores and academic achievement. Such methods do not reveal cause-effect relationships; they only point out that process A *is related to* process B.
4. True. In experimental methodology, the experimenter actually manipulates some aspect of the environmental situation and studies the effect his manipulation has on the individual's behavior in that situation.

If you missed any of the above, you should restudy Frame 4[1] before turning to Frame 5[1] on page 7.

Answer frame 5[1]

1. True. Habituation is a particularly useful procedure for studying nonverbal organisms' responses to sensory stimulation. In addition, much work has been done on orienting behavior. The gradual decline in orienting to stimuli defines the process of habituation.
2. True. The methodology was developed by Pavlov. Only one of the stimuli originally elicits the response, the unconditional stimulus (UCS). The conditional stimulus (CS) acquires its ability to create a response through its paired association with the UCS.
3. True. And acquisition of a conditioned response depends on the time interval between CS and UCS, the number of CS-UCS pairings, and the relative strength of competing responses.
4. False. The procedure of repeated presentations of the CS alone is called *experimental extinction*. Oftentimes a CS that has acquired stimulus value is used functionally as a UCS to study higher order conditioned responses.

If you missed any of the above, you should restudy Frame 5[1] before beginning Frame 6[1] below.

Frame 6[1]

Operant conditioning is the methodology developed by the American behaviorist B. F. Skinner and has direct historical links to Thorndike's instrumental conditioning. Much of our behavior is elicited behavior. Witness your response upon hearing someone call your name. Nevertheless, most of our behavior is spontaneous or at least has no immediately nor easily identifiable eliciting stimulus. This behavior is operant behavior; the response is said to be *emitted* rather than elicited by a known stimulus. The procedure of operant conditioning is used to study the effects of environmental stimulation on our operant behavior. If an *operant response* is followed by a stimulus event that has the effect of strengthening the operant or increasing its probability of occurence, we say that that stimulus is a *reinforcer*. There are basically two classes of reinforcers. A *positive reinforcer* increases the chances that the subject will perform the same operant response over and over again. A *negative reinforcer* increases the probability that the subject will perform in a manner such that he can avoid receiving the reinforcer.

There are two types of reinforcement schedules that one may employ during acquisition: *continuous reinforcement* and *partial reinforcement*. In continuous reinforcement every response is reinforced. In partial reinforcement only some of the responses are reinforced. In addition, there are a number of variations of the partial reinforcement schedule, namely, *fixed ratio, variable ratio, fixed interval,* and *variable interval* schedules. One important characteristic of an operant reinforcer is the time that intervenes between occurrence of the operant and occurrence of the reinforcement. In general, operant learning seems to occur best when the reinforcer occurs immediately after the operant response occurs. This principle of *immediate reinforcement* underlies the theory behind teaching machines or programmed learning texts such as this PLAID. Presumably, the learner has the opportunity to receive immediate knowledge of his performance through feedback from test questions or other self-instructional devices.

Habituation, classical conditioning, and operant conditioning, although referring to ways we learn about the stimulus information in our everyday environment, are basically laboratory procedures used in the scientific analysis of behavior. Developmental psychologists have not restricted such analysis solely to the laboratory however. Following the example set by Darwin, naturalistic studies of human behavior have been an important source of information about developmental processes. Before turning to a brief discussion of observational methods let us simply note that although such methods differ from both correlational and experimental designs, they are used in both types of research designs.

Is each of the following true or false?

_______1. Behavior that is *emitted* rather than elicited by a known stimulus is called reinforced behavior.

_______2. Positive reinforcement repeated over a period of time forces the subject to behave in the desired manner.

_______3. The principle of immediate reinforcement underlies the theory behind teaching machines and programmed learning texts such as this one.

_______4. Developmental psychologists have restricted their analyses to the laboratory because that is where habituation, classical conditioning, operant conditioning, and other experiments are conducted.

Now turn to Answer Frame 6^1 on page 10 to check your answers.

Frame 7^1

Observational methods. One of the problems confronting developmental psychology is the fact that we know surprisingly little about the "natural" settings in which children develop. Such information is crucial for a science of behavior. Thus, there is increasing concern among many developmental psychologists that the accumulated stores of data collected under rigid laboratory procedures relate but questionably to the intricacies of the child's real world. Reflecting this concern is the current revival of observational or naturalistic studies of behavior.

Observational research methods are by no means new nor are they restricted to the study of human behavior. From the early baby biographies to studies of motor development, play, language behavior, and cognitive development, observational methods have been an important tool in the research armamentarium of the developmental scientist. The general problems associated with observational research methods are well known. Briefly, the observer must be able to record or rate the behavior of interest reliably, objectively, and immediately. For very young infants who are prelocomotor and preverbal, one has the additional problem of relying primarily on spontaneous behavior, reflexes, or conditioned responses as behavior indices.

While it is the case that any analysis of behavior by definition requires observation, *observational methods* refer operationally to specific procedures of data collection. Nevertheless, it is difficult to arrive at a singular definition of observational method due to the wide variation among investigators in their choice of operations to be emphasized. Crano and Brewer propose three dimensions of observational

Answer frame 6¹

1. False. Emitted behavior is called *operant* behavior. If an operant response is followed by a stimulus event that has the effect of strengthening the operant or increasing its probability of occurrence, we call that stimulus a *reinforcer.*
2. False. Positive reinforcement *increases the chances* that the subject will perform the same operant response, but such reinforcement does not *force* any behavior.
3. True. In general, operant learning seems to occur best when the reinforcer occurs immediately after the operant response. That is why this text verifies (supports) your answer right after you make it.
4. False. Developmentalists have not restricted their study to the laboratory. Darwin set the example for naturalistic studies of human behavior in "normal" settings.

If you missed any of the above, you should review Frame 6¹ before turning to Frame 7¹ on page 9.

Frame 7¹ continued

methodology that provide a basis for comparision of the various observational procedures employed in the study of behavior: the *participant-nonparticipant,* the *structured* and *non-structured,* and the *response-restriction* dimensions.

The participant-nonparticipant dimension refers to whether the observer is a member of the group which he is observing and, more importantly, to the method used to gain entry into the observational setting. The participant observer is one who has been accepted by the observees as a bonafide member of the observational setting. The nonparticipant observer is one who either forces his way into the observational setting (i.e., is not accepted as a "natural" participant) or is completely isolated from the setting.

The structured-nonstructured dimension refers to the specific techniques employed to record and code the behaviors being observed. The structured coding scheme focuses the observer's attention on specific and predetermined aspects of behavior—oftentimes at the expense of losing valuable data for which no coding categorization was provided. The more nonstructured the observational method becomes, the more freedom the observer has to record all aspects of behavior in the observational setting. The difficulty with the completely nonstructured method is that the observer can become overwhelmed with the mass of data inherent in any social behavior setting.

The response-restriction dimension refers to the constraints the observer and the observational setting place on the behavior of the person being observed. Thus, studying mother-infant interaction in the home situation may lead to quite different behaviors than in a university laboratory setting.

Commensurate with recent admonitions against the relative neglect of observational methods in favor of highly controlled laboratory methods of study, many contemporary developmental psychologists are attempting to bridge the gap between laboratory and more naturalistic research settings, for example, observing dependency behavior in natural play and then studying different responses of high and low dependency in experimental situations.

True or false?

________1. Developmentalists know a great deal about the "natural" settings in which children develop.

________2. Observational or naturalistic studies of behavior are usually restricted to human behavior.

________3. There are many different observational methods used to study behavior.

________4. Many contemporary developmentalists combine observational studies with laboratory studies to make the most out of both techniques.

Now turn to Answer Frame 7¹ on page 12 to check your answers.

chapter 2

DEVELOPMENTAL THEORY: SOCIAL AND PERSONALITY APPROACHES

Frame 1[2]

While there have been many theorists who have been concerned with developmental processes, there have been relatively few systematic and comprehensive theories which have had an extensive impact on the study of children. Moreover, no single theory to date adequately accounts for all that is known of the psychological development of human beings. In fact, even major theories, such as those of Freud and Piaget, may be concerned with aspects of development that are sufficiently different that the two theories can exist side by side, neither necessarily contradicting nor necessarily supplementing the other in most instances. In this chapter we will consider theories which have been concerned primarily with the personality and social development of children. In the next chapter we will consider theories concerned with the intellectual-cognitive development of children.

Sigmund Freud (1856–1939), founder of psychoanalysis, formulated the first systematic theory of personality development—a theory that continues to have a major impact on contemporary notions of personality formation. Among Freud's major concepts are those of libido, of id, ego, and superego.

The libido is an innate motivational force which Freud conceptualized as consisting of instinctive drive. It is present from birth; however, its mode of expression changes over the course of development as a function of maturation and experience. The successive changes in libidinal expression are defined as the psychosexual stages of development. At each stage, libidinal energy is cathected (n. cathexis) or invested in a different organ system of the body which becomes the primary source of (erotic) pleasure during that stage.

Accompanying each shift in libidinal cathexis is a developmental conflict which must be resolved before the individual can successfully enter the next stage. Individuals who fail to resolve the conflict of a given stage are said to be *fixated* at that stage. The fixation has specified effects on the individual's personality development. Fixation at a given stage may be a result of either overindulgence or lack of gratification of the libidinal needs of that stage.

Answer frame 7^1

1. False. Developmental psychologists know surprisingly little about the natural settings in which children develop, and are attempting to correct this deficiency through observational or naturalistic studies of behavior.
2. False. Darwin was an early pioneer who revealed the many insights researchers could obtain about human behavior through the study of other animals.
3. True. Three dimensions of observational methodology are: participant-nonparticipant (member of group or outsider), structured and nonstructured (recording predetermined behavior or free observation), and response-restriction (how much control is exerted over the setting).
4. True. By observing behavior in a "natural" setting and then studying the same behavior in an experimental setting, developmentalists attempt to bridge the gap between these two techniques.

If you missed any of the above, you should restudy Frame 7^1 before turning to Chapter 2 on page 11.

Frame 1^2 continued

Indicate whether each of the following statements is true or false by writing "T" or "F" in the space provided.

________1. Sigmund Freud, the founder of psychoanalysis, formulated the first systematic theory of personality development.

________2. The libido is described as an innate motivational force which Freud conceptualized as consisting of instinctive drive.

________3. The successive changes in libidinal expression are defined as the psychosexual stages of development.

________4. Individuals who fail to resolve the conflict of a given stage are said to be fixated at that stage—the fixation having specified effects on the individual's personality development.

Now turn to Answer Frame 1^2 on page 14 to check your responses.

Frame 2^2

The psychosexual stages. The first psychosexual stage of development is the *oral stage* which is divided into the oral-passive period and the oral-sadistic period. Libidinal energies are focused in the mouth and upper digestive tract. The infant's primary pleasureable gratification consists of sucking and mouthing, while the primary objects of gratification are the breast (or bottle) and the mother who provides them. The developmental conflict of the stage is weaning, that is, when the child is required to give up the breast which has been his chief source of gratification. The oral character which is said to characterize adults with partial fixations at the oral-passive period is manifested in passive, dependent, demanding behaviors as well as in habits such as smoking and nail biting that center around oral gratifications. The oral-sadistic character, on the other hand, is characterized by his sarcasm; he may use symbolically "biting" words, as well as actual biting.

The second stage of psychosexual development is the *anal stage.* During this stage the libidinal energy shifts its focus to the anal region. During this period, the child gains control over the anal sphincter muscles and becomes capable of regulating his bowel movements. Toilet training comprises the developmental conflict of the anal stage. Individuals with partial fixations in this stage may show the anal-retentive character pattern in which one sees concern with orderliness, stinginess, rigid patterns of thinking, suspiciousness, and in more extreme forms, obsessive-compulsive patterns in which there may be excessive meticulous or repetitive patterns such as hand washing. Or they may show anal-aggressive patterns which may be characterized by such attributes as messiness, sloppiness in grooming and personal appearance, and indifference to routine or schedules.

In the *phallic stage* the source of gratification shifts from the anal region to the genital region. The *Oedipus complex* is the developmental conflict of this stage. The young boy develops an intense sexual attachment to his mother. However, this attachment places him in direct rivalry with his larger, more powerful father for his mother's attention. The resulting effect is the development of *castration anxiety,* or fear that his father will retaliate by injuring the boy's penis. Since the child also loves his father, his feelings toward his father are intensely ambivalent. He resolves the anxiety associated with the Oedipus complex by repressing (or pushing out of consciousness) both his strong sexual attachment for his mother and his feelings of rivalry toward his father. At the same time he *identifies* with his father, internalizing his father's values, attitudes, and behavior patterns. The development of the superego derives from this internalization. What previously were externally imposed controls now become internalized self-accepted controls. Violation of these internalized controls results in feelings of guilt; behavior in accordance with these controls leads to feelings of pride.

The young girl undergoes a similar phenomenon to that experienced by the young boy (sometimes referred to as the *Electra complex).* Having no penis, the young girl is assumed to experience *penis envy* rather than castration anxiety. She devalues her mother, who is similarly deficient, and turns to her father, who is not. Her feelings for her mother thus become ambivalent: she both longs for and fears mother. However, it should be noted that Freud had far less to say about the dynamics of female development than he did about male development.

By the end of the phallic period the determinants of the adult personality have been established. The phallic character in adults may show up in sexual exploitation of others, that is, sexual gratification of one's own desires without regard for the feelings or needs of others.

The repression of libidinal impulses which terminates the Oedipus complex introduces the latency period, which persists until the beginnings of sexual maturity in preadolescence. The beginning of sexual maturity in preadolescence is accompanied by increased sexual drives, in the face of which the repressions of the latency period begin to break down. The individual whose resolution of the Oedipus complex was successful now enters the *genital stage* of mature adult sexuality. The sexual attraction originally directed toward the opposite-sex parent is transferred to the opposite-sex peer, and the individual becomes capable of tenderness and consideration for the feelings of others.

Label each of the following statements as true or false.

________1. Adults with partial fixations at the oral stage of psychosexual development are concerned with orderliness, stinginess, rigid patterns of thinking, and suspiciousness.

________2. Those persons characterized by such attributes as messiness, sloppiness in grooming and personal appearance, and indifference to routine or schedules are showing anal-aggressive patterns.

________3. During the phallic stage of development, a young person develops ambivalent feelings toward his or her parents.

________4. In the genital stage, the sexual attraction originally directed toward the opposite-sex parent (Oedipus complex or Electra complex) is directed toward the opposite-sex peer.

Now turn to Answer Frame 2^2 on page 14 to check your answers.

Answer frame 1^2

1. True. Freud's theory of personality development continues to have a major impact on contemporary researchers.
2. True. It is present from birth, but its mode of expression changes over the course of development due to maturation and experience.
3. True. At each stage of development, libidinal energy is concentrated on a different organ system of the body which becomes the primary source of pleasure during that stage.
4. True. Fixation at a given psychosexual stage may be a result of either overindulgence or lack of gratification of the libidinal needs of that stage.

If you missed any of the above, you should restudy Frame 1^2 before turning to Frame 2^2 on page 12.

Answer frame 2^2

1. False. Adults with partial fixations at this stage show passive, dependent, demanding behaviors or engage in habits such as smoking and nail biting. The behavior described in the question is manifest of an *anal* fixation.
2. True. On the other hand, partial fixation at the anal stage may result in excessive meticulous or repetitive patterns such as hand washing.
3. True. A young boy both loves and fears his father (castration anxiety) and *identifies* with his father, internalizing his father's values, attitudes, and behavior patterns. Young girls go through similar phenomena.
4. True. At this stage, the individual becomes capable of tenderness and consideration for the feelings of others.

If you missed any of the above, you should reread Frame 2^2 before beginning Frame 3^2 below.

Frame 3^2

Id, ego, and superego. Id, ego and superego are conceptualizations of the structure of personality. The id is the source of motivational energies and is present from birth. It operates according to the pleasure principle, seeking immediate gratification of motivational impulses. Since immediate impulse gratification is not always possible or desirable, the ego emerges as a mediator between the id impulses and the external reality situation. Thus, the individual becomes able to assess what is possible in a given situation and what means may be used to achieve gratification of id impulses. Since the ego takes the facts of external reality into account, it is said to operate according to the reality principle.

The superego, consisting of ego ideal (which rewards with pride) and conscience, develops out of the ego and is the last structure to appear. It consists of the internalized social sanctions and principles of conduct of the world around the child as represented to him by his parents. Where the id seeks immediate gratification, the superego imposes sanctions against such gratification. Thus, as the superego develops, an additional function of mediating between id and superego impulses is imposed on the ego. Id and superego processes were originally believed to be unconscious, that is, outside the individual's conscious awareness, as are some aspects of ego function. Only the remaining ego functions are available to conscious awareness. Note, however, that contemporary psychoanalytic theory maintains that ego and superego functions span all levels of consciousness.

It is easy to underrate Freud's impact on child psychology because many of his ideas have become generally accepted and so no longer seem to be brilliant new insights. For instance, it was Freud who first stressed the critical importance of the first years of life for the development of adult personality. Although few psychologists would argue with this view, they might not accept the idea that the foundation of personality formation is essentially completed with the termination of the Oedipus complex, that is, at about age five. Freud's direct influence is declining as research and new theories develop, but it remains true that a very large proportion of the concepts and problems with which developmental psychologists are concerned were first defined or formulated by Freud.

Is each of the following true or false?

________1. The id is the source of motivational energies and is present from birth.

________2. The ego adds to a person's self-centeredness and aggravates the id impulses and increases them.

________3. Where the id seeks immediate gratification, the superego imposes sanctions against such gratification.

________4. Freud's ideas have largely been dismissed by developmental psychologists, and his influence on theory development is small.

Now turn to Answer Frame 3² on page 16 to check your answers.

Frame 4²

One shift in emphasis in Freudian theory stems from the objection to his stress upon biological imperatives, that is, his view that the psychosexual stages represented innate biological givens. Many subsequent theorists have alternatively interpreted the sequence of developmental conflicts as social in nature, consisting of sequential social interactions between parent and child. For example, the anal stage may be interpreted as occurring as a result of the parent's demands that the child develop socially acceptable toilet habits, rather than as a consequence of an innate motivational pattern in the child.

Another shift has been in the relative importance placed on the development of the ego, a direction in which Freud too was moving toward the end of his life. While unconscious processes and libidinal motivations are still recognized concepts, modes of dealing with reality or adjusting to the demands of the environment are given a much larger role in current psychoanalytic theory and in personality theory generally.

Erik Erikson is one contemporary theorist who attempts to incorporate both of the above-mentioned trends. Erikson believes that there are both psychosexual and psychosocial stages of ego development. He describes eight stages of psychosocial development—the "eight stages of man"—each of which has both a positive and a negative component. In the first of these stages, extending usually through the first year of life and corresponding roughly to the oral stage, the child develops a sense of *basic trust* or comes to *mistrust* his world. If he has been well cared for and loved, he develops a sense of trust in the world as a safe place and learns to view people as dependable. If, on the other hand, he has been poorly or inconsistently cared for or rejected, he develops a sense of doubt or mistrust. In the second stage, *autonomy versus doubt,* the child either develops a feeling of competence and learns to take pride in his accomplishments or he comes to doubt his ability to handle new situations. In the third stage, *initiative versus guilt,* he much more actively initiates new behaviors. If these behaviors are successful, he develops a sense of initiative. If the attempts at self-initiated behavior are disparaged, he develops a sense of shame and guilt.

The fourth stage, *industry versus inferiority,* takes place during the elementary years or the approximate time of the latency period. Children's competence expands rapidly during this period. They become capable of engaging in and completing a wide variety of activities and projects. A sense of industry develops in the child whose efforts meet with encouragement, respect, and success. The child whose efforts are discouraged, belittled, etc., develops a sense of inferiority. Experiences at school as well as at home become important during this stage.

With adolescence, when the child enters the genital stage, he also moves into the psychosocial stage of *identity versus role diffusion.* The adolescent has newly developing mental skills which permit him to

Answer frame 3^2

1. True. The id is present from birth and operates according to the pleasure principle, seeking immediate gratification of motivational impulses.
2. False. The ego is a mediator between the id impulses and external reality. It is said to act according to the reality principle.
3. True. The superego consists of the internalized social sanctions and principles of conduct of the world around the child as represented to him by his parents.
4. False. A very large proportion of the concepts and problems with which developmental psychologists are concerned were first defined or formulated by Freud. It is easy to underestimate Freud's impact because many of his ideas have become generally accepted and no longer seem insightful.

If you missed any of the above, you should review Frame 3^2 before turning to Frame 4^2 on page 15.

Frame 4^2 continued

think about himself and to integrate different images that he has developed of himself. The individual who has strong senses of autonomy, initiative, and industry is more likely to achieve a clear sense of identity as well. Nevertheless, his success in doing so will continue to depend upon his social setting and the social roles available to him. In the absence of successful experiences from earlier childhood or in the face of a social milieu in which few or no acceptable role alternatives are available to him, the individual may experience a sense of role confusion or may lack an adequate understanding of who he is.

The sixth stage, *intimacy versus isolation,* comes with young adulthood. The young adult who establishes those interpersonal relationships which incorporate sharing with another person, either through friendships or through marriage, develops a sense of intimacy. In the absence of such close relationships the individual feels isolated and alone. What a given individual will experience depends both upon how successful he has been in preceding periods and upon environmental circumstances which may or may not permit development of intimate interpersonal relations.

Middle age, the seventh stage, is characterized as a stage of *generativity versus self-absorption* or *stagnation.* One who develops generativity becomes concerned with others beyond his immediate friends and family, that is, with making a better world. If generativity fails to develop, the individual becomes overinvolved with his own personal needs and concerns. The eighth and final stage consists of *integrity versus despair.* The individual who, approaching the end of his life, can look back upon his life and find it good, has integrity. The individual who finds himself dissatisfied with his life when it is too late to make new starts, experiences despair.

Clearly Erikson accepts a great deal of the original Freudian system. At the same time, he recognizes developmental dynamics other than innate biological motivation. He recognizes influences not only of family but of other social sources and he allows for continuation of development beyond adolescence.

Social learning theory. Social learning theory developed when American psychologists began to apply the concepts of stimulus-response theory to the phenomena of personality development. Instead of inferring changes in motivational states as the source of developmental change, social learning theorists speak of processes such as reinforcement, conditioning, generalization, imitation, and socialization.

The contrasts between social learning theory and theories such as those of Freud and Erikson are many. Social learning theorists are behavioristic in outlook; they are unwilling to assume the existence of internal motivational states or dynamic forces which cannot be observed. They prefer instead to refer to antecedent conditions and consequences of a given behavior, that is, to whether and how a given act is reinforced. Social learning theorists do not assume that development proceeds in stages.

Despite these basic differences, Freudian dynamic theory has clearly influenced social learning theory. Much of the early development of social learning theory consisted of attempts to restate Freudian concepts and principles in the terms of learning theory. Moreover, many issues of current concern—the relationship of identification to imitation, or whether children possess internalized standards of conduct (superego) or make moral actions because they have been conditioned to do so—derive directly from Freudian theory. Since the approach of social learning theory is well exemplified in the bulk of research on behavior tendencies, such as aggression and dependency, and since learning is discussed in detail in Chapter 8, the reader should refer to that chapter and topic for a more complete formulation of the concepts of the social learning approach.

Label each of the following statements as true or false.

________1. One shift in emphasis in Freudian theory stems from the objection to his view that the psychosexual stages represent innate biological givens.

________2. Unconscious processes and libidinal motivations have taken on a new importance since Freud's work, and environmental influences are receiving less attention.

________3. One contemporary theorist, Erik Erikson, believes that there are both psycho*sexual* and psycho*social* stages of ego development.

________4. Erikson's psychosocial stages end at late adolescence and say little about adult development.

________5. Instead of inferring changes in motivation states as the source of developmental change, social learning theorists speak of processes such as reinforcement, conditioning, generalization, and socialization.

Now turn to Answer Frame 4^2 on page 18 to check your answers.

Answer frame 4²

1. True. Many subsequent theorists have alternatively interpreted the sequence of developmental conflicts as social in nature, consisting of sequential social interactions between parent and child.
2. False. While unconscious processes and libidinal motivations are still recognized concepts, current psychoanalytic theory gives a much greater role to environmental influences and adjustments to them.
3. True. He describes eight stages of psychosocial development—the "eight stages of man"—each of which has both a positive and a negative component.
4. False. Middle age is characterized as a stage of *generativity versus stagnation,* and the final stages of life are characterized by feelings of *integrity versus despair.*
5. True. Social learning theorists are behavioristic in outlook; they are unwilling to assume the existence of internal motivational states of dynamic forces which cannot be observed.

If you missed any of the above, you should review Frame 4² before beginning Chapter 3.

chapter 3

DEVELOPMENTAL THEORY: COGNITIVE

Frame 1³

Although a number of theorists have been concerned with cognitive development, Piaget has been by far the most influential and systematic theorist. Consequently this chapter will be devoted to his work. Jean Piaget (1894–) has spent the major portion of his life in the study of the development of intelligence. His particular interest has been in *genetic epistemology,* or how knowledge of the external world develops.

Piaget believes that intelligence is an attribute of all living things. Like other attributes of living things, intelligence is characterized by *organization* (or structure) and by *adaptation* (or change in response to circumstances). The kinds of problems an individual can solve depends upon the intellectual structures that he has available. Intellectual development therefore consists of progressive, sequential changes in the structure or organization of intelligence; it is these changes which are described in Piaget's theory.

Intellectual structures change through adaptation, which has the two complementary components of *accommodation* and *assimilation.* When a child brings his existing intellectual structures to bear on some new circumstance, the structures must be altered to accommodate the demands of the new circumstances. Simultaneously, the new circumstance is assimilated or incorporated into the structure. As a result, the structure is changed and the individual can now cope with the new circumstance. Every adaptation of structure involves both accommodation and assimilation, although they are not always equally important. In play, children may assimilate a wide variety of objects into present structures with relatively little accommodation to the particular characteristics of the object. For instance, the "boat" on which the child is playing could be a roomy sofa, a packing case, or a pile of pillows. That is, the object is seen in a way such that it is assimilated into an existing structure. In imitation, however, a child matches his actions as closely as possible to those of some model. Here the stress is on accommodation rather than assimilation. The structure changes to take into account the particular attributes of the object.

Since adaptation occurs when intellectual structures must cope with something new, intellectual growth occurs only when there is *disequilibrium,* that is, when a discrepancy or contradiction exists between what the structures are equipped to handle and the recognized demands of a new situation. If the child cannot recognize the contradiction, change will not occur. So mental growth does not depend directly upon experience but rather on the child's mental dealings with experience.

Piaget has developed his theory of intellectual growth by observing how children cope with problems. His concern has not been with whether they solve problems correctly, that is, with the product of intelligence as are most other theorists (e.g., see Chapter 10). Rather, Piaget is concerned with how children work on problems, with the cognitive processes they use regardless of whether the outcome is correct or not. He believes that intelligence develops in a series of stages, each of which is characterized by a qualitative change in intellectual performance. Each stage depends on the previous stage, so there is an invariant sequence to the development of intelligence. The appearance of a new stage represents the consolidation of skills which began in a previous stage. Each new stage incorporates the preceding stage and builds upon it, rather than replacing it. Thus, beginning a new stage means only that the evidence of a new cognitive structure is present, not that the new mode of thinking is suddenly characteristic of all the individual's thinking. Following its first appearance, each new mode undergoes gradual application in more and more of the individual's thinking. However, older modes of thought are never completely replaced by newer modes.

Indicate whether each of the following statements is true or false by writing "T" or "F" in the space provided.

________1. Piaget feels that intellectual development consists of progressive, sequential changes in the structure or organization of intelligence.

________2. Not every adaptation of intellectual structures involves both accommodation and assimilation; one is sufficient.

________3. Mental growth depends directly upon experience.

________4. Piaget was most concerned with whether or not children were able to solve problems correctly.

Now turn to Answer Frame 1^3 on page 20 to check your responses.

Frame 2^3

Stages of intellectual development. In the *sensorimotor stage* (birth to 18–24 months), intelligence is believed to consist of sensations, perceptions, motor actions, and the innate reflexive repertoire of the infant. Thought is action. The infant is born with a series of reflexes which very early in life begin to adapt or show modification with experience. This adaptation marks the beginning of intellectual growth. The reflexes develop into schemas which are more or less integrated and identifiable structures or patterns of action (behavior). There is, for example, a sucking schema, a grasping schema, a

Answer frame 1^3

1. True. Like other attributes of living things, intelligence is characterized by Piaget as *organization* (or structure) and as *adaptation* (or change in response to circumstances).
2. False. Every adaptation involves both accommodation and assimilation, although they are not always equally important.
3. False. Intellectual growth occurs only when there is *disequilibrium*. If the child does not recognize a contradiction, change will not occur.
4. False. Piaget is concerned with how children work on problems and with the cognitive processes they use regardless of whether the outcome is correct or not.

If you missed any of the above, you should restudy Frame 1^3 before turning to Frame 2^3 on page 19.

Frame 2^3 continued

looking schema. Throughout the period of infancy, there is expansion and differntiation of schemas as well as coordination of previously separate schemas. For example, when looking becomes coordinated with grasping, the infant achieves the ability to reach for what he sees and to look at what he grasps, marking the appearance of new schemas that emerge from the coordination of previously available ones.

Perhaps the most important accomplishment of the sensorimotor stage is the development of *object permanence.* The young infant does not appear to distinguish between objects and he seems to have no concept of objects as existing when he cannot experience them directly. It is as if as soon as the object is no longer felt, seen, or otherwise experienced it no longer exists. It is not until the end of the first year that most children begin to act as though objects continue to exist when they cannot be seen or felt. They look for objects which drop from their sight or are hidden. They become capable of following an "unseen" object, such as a coin which they have seen enclosed in a hand, through one or more placements directly to the last location the hand has been in order to locate the object. With the development of object permanence the child comes to act as though he treats himself as an object in the same spatial plane as other objects. On a sensorimotor level (in his actions) he has begun to master the concepts of space, of time, and of causality. This is notably seen in his beginning understanding of means-ends (cause-effect) relationships.

The stage of *preoperational thought* begins when a child becomes capable of mental representation, which permits him to begin use of symbols. This usually occurs sometime between 18 months and 2 years of age. The appearance of delayed imitation is taken as evidence of mental representation, since in order for a child to imitate some event hours or days after its occurrence, he must have some internalized model which permits him to remember the event. With the development of symbolic representation, the child becomes able to learn language. Note that Piaget insists that language follows from the more general ability to use symbols, rather than language being the source or origin of symbolic function.

The major accomplishment of the preoperational period is reconstruction of the child's sensorimotor world into symbolic form so that he can deal with it on a mental level. His vocabulary expands and he becomes able to talk about things. There are still sizable limitations on the child's intellectual performance. However, his actions and use of words indicate that his thinking is still *preconceptual* and *prelogical.* He does not seem to have mental representations for sequences of actions or relations between actions or objects. He lacks clearly defined concept boundaries which would permit him to categorize instances and noninstances of a concept consistently. Further, his thinking is *irreversible,* which is to say that he cannot mentally reverse a series of actions and come out back where he started (although he may be able to reverse the actions themselves).

Is each of the following true or false?

_______1. Infants are born with a series of reflexes which very early in life begin to adapt or show modification with experience.

_______2. From birth infants are able to distinguish between objects, and they miss objects that are taken away.

_______3. Piaget feels that language is the source or origin of the symbolic function.

_______4. The major accomplishment of the preoperational period is reconstruction of the child's sensorimotor world into symbolic form so that he can deal with it on a mental level.

Now turn to Answer Frame 2^3 on page 22 to check your answers.

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Frame 3^3

With the advent of the stage of *concrete operations* (five years to seven years of age), many of the limitations of preoperational thinking begin to disappear and the child begins to think logically. The operations themselves are mental structures corresponding to mathematical operations such as equivalence, addition, and multiplication, and to logical operations such as union, intersection, and implication. The concrete operational stage begins when the child begins to show *conservation* of invariant properties of objects, such as quantity or number, in the face of irrelevant transformations. For example, the preoperational child will say that the amount of clay in one of two identical balls is different if its shape is changed, or that the number of objects in one of two equal collections changes if they are rearranged. This child fails to conserve quantity or number. The concrete operational child can recognize that if the two balls of clay or two collections of objects were equivalent to start with, they will remain equivalent, unless more is added or some is taken away. This child shows conservation of quantity and number. His thinking becomes *reversible.* He may say that if you change them back to the way they were before, they would still be the same. In addition, he becomes able to classify objects according to superordinate and subordinate classes and to arrange objects in serial order.

The child does not suddenly begin to use operations on all aspects of his experience at once or to conserve all invariant properties of objects at once. Conservation of quantity appears early, conservation of weight will not appear until a year or two later, and conservation of volume will not typically appear until sometime between 11 and 15 years of age. The main task of the concrete operational period is the extension of the newly developed operational structures to an ever-widening range of the child's experience.

The concrete operational child can apply operations to material which he is manipulating but he has difficulty when it comes to applying them to hypothetical situations (hence the name, *concrete* operations). Moreover, he is not yet able to coordinate two or more operations. With the advent of the stage of *formal operations* (about 11 to 15 years of age), these limitations are overcome. The child can now formulate hypotheses. He can isolate elements of a problem and work out all the possible combinations they may take, even when the combinations are hypothetical. He is now capable of scientific thinking. He can coordinate his operations into higher order operations, permitting him to use two or more operations in conjunction with each other. He also begins to examine his own thinking and becomes aware of and critical of his own ideas. The capacity of formal operational thought to operate independently from that which is immediately experienced, represents the final freeing of the individual's thinking from its original complete dependence upon sensorimotor experiences.

That an individual is capable of formal operational thought does not mean that all of his thinking is on the formal operational level. Rather, as with concrete operations, the individual gradually expands his newly acquired skills to wider and wider

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Answer frame 2^3

1. True. This adaptation marks the beginning of intellectual growth. The reflexes develop into schemata (sucking, grasping, looking) which are more or less integrated and identifiable patterns of action (behavior).
2. False. It is not until the end of the first year that most children begin to act as though objects continue to exist when they cannot be seen or felt (object permanence).
3. False. Piaget insists that language follows from the more general ability to use symbols. The stage of *preoperational thought* begins when a child becomes capable of mental representation, which permits him to begin use of symbols.
4. True. The child's vocabulary expands and he becomes able to talk about things; however, his actions and use of words indicate that his thinking is still *preconceptual, prelogical,* and *irreversible.*

If you missed any of the above, you should review Frame 2^3 before turning to Frame 3^3 on page 21.

Frame 3^3 continued

areas of his thinking. However, one can find concrete operational and even sensorimotor thinking in individuals throughout adulthood.

Egocentricism is an additional important concept in Piaget's theory. By egocentricism, Piaget does *not* mean selfishness but rather self-centeredness in the sense of experience not yet differentiated from the self. Individuals of all ages are egocentric in this sense. However, the characteristic forms of egocentricism change as the individual's mental structures change and develop. The infant starts out completely egocentric, incapable of any separation of himself from his experiences with objects. Subsequently, his egocentricism shifts to the symbolic level. He behaves as though he believes that his thoughts are true for everyone else and seems unable to recognize that others may have different information, experiences, or points of view from his own. With the advent of formal operational thinking, the adolescent may apply his newfound critical facilities and capacity for hypothetical thinking to himself and to the world around him without realizing that others may not be similarly critical or that they may have different considerations to bring to bear on problems.

True or false?

________1. About the age of five to seven, a child enters the stage of *concrete operations* which begins when the child starts to show *conservation* of invariant properties of objects.

________2. The concrete operational child is suddenly able to conserve all invariant properties of objects as a result of his first experiences.

________3. The capacity of *formal operational* thought to operate independently from that which is immediately experienced represents the final freeing of the person's thinking from its original complete reliance upon sensorimotor experiences.

________4. An infant starts out completely egocentric and is thus considered selfish, and he or she maintains that selfishness as his egocentricism shifts to the symbolic level.

Now turn to Answer Frame 3^3 on page 24 to check your answers.

chapter 4

PRENATAL DEVELOPMENT AND THE BIRTH PROCESS

Frame 1[4]

With the exception of the sex cells, each normal human cell is composed of 46 threadlike structures called *chromosomes.* The basic units of heredity, or *genes,* are located on the chromosomes. Chromosomes consist of three substances: protein, deoxyribonucleic acid (DNA), and ribonucleic acid (RNA). DNA is of fundamental importance since it is believed to regulate the development of the organism as well as to mediate the hereditary characteristics transmitted from parent to offspring. For reproductive cells a cell division process called meiosis occurs. During this process the chromosomes separate into two daughter cells (*gametes* or sperm and ovum) each of which contains 23 chromosomes. When sexual intercourse occurs and fertilization of the ovum by the sperm results, the chromosomes from the two gametes recombine. Thus, each newly formed organism receives 50 percent of its genetic makeup from each parent—23 chromosomes from the father and 23 from the mother. From this single cell with its 46 chromosomes and associated genes will eventually develop an adult organism composed of trillions of cells each of which will be a duplicate of the original cell. This process of cell division or duplication is referred to as *mitosis.*

Stored in the ovaries of the human female are several hundred thousand ova. Upon reaching sexual maturity, the ovary releases one ovum per month, a process called *ovulation.* The released ovum enters the *fallopian tube* where it can be fertilized. When fertilized by a sperm cell the ovum, then called a zygote, will become embedded in the blood-engorged uterine lining. If the ovum is not fertilized, the uterus expells the excess blood in *menstruation.* Since with any single ejaculation the human male releases several hundred million sperm cells, the odds highly favor fertilization. Methods used to decrease these odds are collectively referred to as *contraceptive techniques.* Among these techniques, vasectomy and hysterectomy are the most effective, the pill and condom the most popular, and the rhythm method and douching the least effective methods for preventing fertilization.

Indicate whether each of the following statements is true or false by writing "T" or "F" in the space provided.

______1. Each normal human cell is composed of 46 threadlike structures called chromosomes.

______2. Children receive most of their genetic makeup from the same sex parent: thus girls receive more chromosomes from their mothers and boys more chromosomes from their father.

______3. Through a process called *ovulation,* the mature female ovary releases one ovum per month which enters the *fallopian tube* and has the potential, if fertilized, to grow into a child.

______4. The chances of a woman becoming pregnant by having the ovum fertilized in a single sexual relationship with a man is very remote.

Now turn to Answer Frame 1[4] on page 24 to check your responses.

Answer frame 3^3

1. True. The concrete operational child can recognize that if two balls of clay are equivalent to start with, they will remain equivalent, unless more is added or some is taken away.
2. False. The child is not able to conserve all invariant properties of objects at once. Conservation of quantity appears early, conservation of weight does not appear until a year or two later, and conservation of volume will not appear typically until sometime between ages 11 and 15.
3. True. At the advent of the stage of *formal* operations (11–15 years), a child is able to formulate hypotheses and can isolate elements of a problem and work out all the possible combinations they may take, even when the combinations are hypothetical. This ability frees the child from his original reliance upon immediate experience.
4. False. Egocentricism does not mean selfishness but rather self-centeredness in the sense of experience not yet differentiated from the self. Since no one can fully understand *everything*, even adults show egocentrism; however, characteristic forms of egocentrism change as mental structures change.

If you missed any of the above, you should restudy Frame 3^3 before turning to Chapter 4 on page 23.

Answer frame 1^4

1. True. Chromosomes consist of three substances: protein, deoxyribonucleic acid (DNA), and ribonucleic acid (RNA).
2. False. Each child receives 50 percent of his or her genetic makeup from each parent—23 chromosomes from the father and 23 from the mother.
3. True. When fertilized by a male sperm cell, the ovum (which is then called a zygote) will become embedded in the uterine lining and begin growing. If the ovum is not fertilized, the uterus expells the excess blood in the uterine lining in a process called *menstruation*.
4. False. With any single ejaculation, a man releases several hundred million sperm cells, so the odds highly favor fertilization unless contraceptive techniques are used to prevent fertilization.

If you missed any of the above, you should restudy Frame 1^4 before beginning Frame 2^4 below.

Frame 2^4

Occasionally women give birth to more than one infant at a time, the most common multiple birth being twins. Identical or *monozygotic* twinning occurs when a single sperm fertilizes a single ovum and the resulting cell division produces two individual zygotes. When two ova are released during ovulation and each is fertilized by a sperm cell, the resulting twins are referred to as fraternal or *dyzygotic*. Although they are genetically identical, monozygotic twins are not necessarily behaviorally identical. On the other hand, dyzygotic twins are just as different in their genetic and behavioral characteristics as are nontwin siblings. *Genotype* refers to the inferred genetic makeup of the individual. *Phenotype* refers to the manner in which the genotype is expressed. Thus, while identical twins would have identical genotypes, they more than likely would have different phenotypes. Fraternal twins, however, would differ in both genotype and phenotype. Moreover, the phenotypic differences between fraternal twins would be expected to be greater than those between identical twins.

Counting from the last menstruation, *gestation length* is typically 270–80 days. Since menstrual bleeding occasionally persists after fertilization has occurred, accurate determination of gestation length is difficult. The variability in time from menstruation to fertilization further contributes to the difficulty of estimating gestation length accurately. Considering the whole prenatal period, the newly formed individual is referred to as the *conceptus*. One scheme has been devised for studying and describing the extraordinary growth and development taking place during the prenatal period divides the prenatal months into three subperiods: that is, the period of the zygote (0–14 days), the embryo (2–8 weeks), and the fetus (3 months to term).

Label each of the following statements as true or false.

_______1. Identical or monozygotic twins form when a single sperm fertilizes a single ovum and the resulting cell division produces two individual zygotes.

_______2. Because they are genetically identical, identical or monozygotic twins are always behaviorally identical.

_______3. Phenotype refers to the inferred genetic makeup of an individual.

_______4. Counting from the last menstruation, gestation length (the time of pregnancy) is typically 270–80 days.

Now turn to Answer Frame 2^4 on page 26 to check your answers.

Frame 3^4

During the *period of the zygote,* the fertilized ovum descends the fallopian tube and enters the uterine cavity. Implantation in the uterine wall marks the major developmental event of this period. This is the major event, since failure of the zygote to become embedded in the uterine lining means that it will be aborted during the ensuing menstruation. The implanted zygote undergoes change with the outer part developing into the placenta and umbilical attachment and the inner part developing into the embryo. During this period as well as during the early part of the next period, placental growth is more rapid than is the growth of the conceptus. This difference in growth rate reverses during the latter part of prenatal development.

During the *period of the embryo,* the conceptus continues to differentiate, forming three layers: ectoderm, mesoderm, and endoderm. The *ectoderm* develops into the skin and skin glands, nervous system, hair, and nails. The *mesoderm* develops into the musculature, skeletal, circulatory, and excretory systems. The *endoderm* develops into the eustachian tubes, trachia, bronchia, and vital glands and organs. Located at the part of the zygote next to the uterine wall is the *trophoblast* which functions to provide nutrient material for the embryo. This continues until the third or fourth week when the placenta becomes functional and the trophoblast is no longer available for nutrient supply.

The cardiovascular system provides one example of the rapidity of growth during prenatal development. Cells of the immature human heart begin to appear by the beginning of the third prenatal week. By the end of the third week a slight heart beat may be evidenced and the *amnionic sac* and fluid, which function to minimize mechanical injury to the conceptus, also make their appearance. Physically, the three-week-old conceptus has begun to develop a head and a tail. By one month, the gastrointestinal tract emerges, facial features begin to form, and a true umbilical cord appears. Nevertheless, the organism remains an extremely immature physical system. By two months, facial features and extremities are now in evidence, and although only approximately 3 centimeters long, the conceptus is recognizably human. Moreover, the sex glands begin to form and the internal organs become more clearly differentiated as well as in some cases, functional.

During the *period of the fetus,* growth and differentiation of the basic organized systems continues. By four months, fetal movements are generally felt despite the fact that the fetus is only about 4–5 inches long. By five months, the fetus begins to more nearly assume human features: hair begins to appear, sucking movements occur, eyes blink, nails and sweat glands can be seen. Seven months marks a critical period in the development of the conceptus. Referred to as the *point of viability,* this marks the time when the conceptus if born stands a reasonably good chance of survival.

Answer frame 2[4]

1. True. When two ova are released and each is fertilized by a separate sperm cell, the resulting twins are referred to as fraternal or dyzygotic.
2. False. Identical twins are not necessarily behaviorally identical. Fraternal or dyzygotic twins are just as different behaviorally as two nontwin siblings.
3. False. *Genotype* refers to the inferred genetic makeup. Phenotype refers to the manner in which the genotype is expressed. Identical twins have identical genotypes, but they usually have different phenotypes.
4. True. The prenatal period may be divided into three subperiods: the period of the zygote (0–14 days), the embryo (2–8 weeks), and the fetus (3 months to birth).

If you missed any of the above, you should reread Frame 2[4] before turning to Frame 3[4] on page 25.

Frame 3[4] continued

Label each of the following statements as true or false.

________1. Implantation in the uterine wall marks the major developmental event in the period of the zygote.

________2. During the period of the embryo, the conceptus continues to differentiate, forming two layers: the ectoderm (skin and skin glands, nervous system, hair, and nails) and the endoderm (e.g., vital glands and organs).

________3. By the end of the third week of prenatal development, a slight heart beat may be evidenced.

________4. By five months, the fetus begins to assume more nearly human features: eyes blink, sucking movements occur, and sweat glands can be seen.

Now turn to Answer Frame 3[4] on page 28 to check your answers.

Frame 4[4]

For many years *prematurity* was defined as the length of gestation. However, researchers have found that gestation length is not the single crucial variable that predicts the degree of developmental difficulty confronting the prematurely born infant. Today, prematurity is described more accurately as short gestation, small for birth date, or low birth weight. Generally, infants weighing less than 2,500 grams (about 5½ pounds) may be considered premature, although birth weights less than 1,500 grams are far more predictive of potential developmental deficiencies than are those between 1,500 and 2,500 grams. Prematurity has been associated with intellectual deficiencies, brain injury, toxemia of pregnancy, perceptual-motor disabilities, immature speech, and difficulties with abstract reasoning. These difficulties appear to be independent of race, social class, and maternal attitudes. Most health sciences are in agreement that the best treatment for prematurity is prevention, including adequate prenatal care and nutrition. Needless to say, not all prematurely born infants suffer adversities, a point the reader may well confirm if he or she were prematurely born.

Occasionally during meiosis a phenomenon termed *nondisjunction* occurs resulting in the improper division of the 46 chromosomes. Thus, one gamete may contain 24 chromosomes and the other gamete only 22. If an ovum containing the extra chromosome is fertilized by a sperm containing the correct number of chromosomes, the resulting zygote will have 22 normally paired chromosomes and 1 abnormal chromosome complement occurring in triplicate. This condition is known as *trisomy,* the most profound example of which is Down's syndrome (mongolism). Although the factors that cause trisomy are not completely known, it has been found to be related to maternal age (occurring more frequently in older women) and to viral infection. Just as some chromosomal abnormalities are linked to chromosomes occurring in triplicate, others result from chromosomes occurring as singletons *(autosomal* *monosomics)*. Since the phenotypic characteristics of autosomal monosomics have yet to be detailed, most researchers conclude that the condition is fatal—most autosomal monosomics have been identified only after having been aborted.

Klinefelter's syndrome and Turner's syndrome are chromosomal abnormalities associated with the sex-determining chromosome. Males suffer from Klinefelter's syndrome; they show incomplete sexual development that is often associated with mental retardation. Females suffer from Turner's syndrome and also are characterized by incomplete sexual development and often have cognitive and perceptual deficiencies.

During the first two periods of conceptual development, the organism is especially susceptible to environmental disturbances, any one of which could endanger its chances for normal growth and development. Among these environmental factors are *(a)* drugs—narcotics, nicotine, steriods, antibiotics; *(b)* nutrition—protein-calorie deficiency, vitamin deficiency, maternal obesity; *(c)* disease—rubella, venereal disease, poliomyelitis, smallpox, viral hepatitis; *(d)* maternal factors—age, emotional state, parity, diabetes, multiple pregnancy; *(e)* radiation—atomic, X ray, therapeutic; and *(f)* general factors—blood incompatibility, and intense noise.

Is each of the following true or false?

________1. The length of gestation period is the one variable that predicts the amount of developmental difficulty that a premature child will face.

________2. Improper cell division during prenatal development may result in an abnormal fetus.

________3. Klinefelter's syndrome and Turner's syndrome are chromosomal abnormalities associated with the sex-determining chromosome.

________4. A woman who smokes, takes drugs, or eats improperly during pregnancy may endanger her child's chances for normal growth and development.

Now turn to Answer Frame 4^4 on page 28 to check your answers.

Frame 5^4

While it is true that there are no direct neural connections between mother and conceptus, maternal emotional state may influence the developing organism. Excessive and prolonged anxiety and hypertension throughout pregnancy, perhaps as a result of environmental stress, may produce excessive outflow of various hormones which may cross the placenta and interact with the conceptus. Some maternal emotional states have been associated with hyperactive children. On the other hand, there is no evidence to suggest that maternal attitudes, specific fears, values, and the like are transmitted intrauterinely to the conceptus.

When considering the effects of pregnancy we often overlook the fact that important changes also occur in maternal physiology and appearance. For example, conception brings about changes in maternal physiology including changes in gonadal hormone production, blood tissue fluid volume, heart rate, oxygen consumption, respiration rate, and cessation of menstruation. Moreover, the changes that accompany physical growth of the conceptus have their counterpart changes in the physical appearance of the pregnant woman. These changes in the phenotypic appearance of the woman are most noticeable in the breast and abdominal regions.

Dilation of the cervix in association with labor pains marks the beginning of *parturition* or labor. Early labor pains may be so insignificant that many *primiparous* (not having given birth previously) women tend not to associate them with labor. Timing of the cramps is important, with a regularity of four minutes suggesting that if not yet at the hospital, one should quickly get there! Length of labor is quite variable lasting anywhere from several hours to several days. In general, labor and delivery are faster

Answer frame 3^4

1. True. Failure of the zygote to become embedded means that it will be aborted during the ensuing menstruation. If it does become implanted, the zygote undergoes change with the outer part developing into the placenta and umbilical attachment and the inner part developing into the embryo.
2. False. During this period, three layers form—the ectoderm and the endoderm, and a third layer called the mesoderm which develops into the musculature, skeletal, circulatory, and excretory systems.
3. True. The cardiovascular system provides one example of the rapidity of growth during prenatal development.
4. True. By five months, the fetus is developing rapidly so that at seven months (the point of viability) a baby has a good chance of survival on its own.

If you missed any of the above, you should reread Frame 3^4 before turning to Frame 4^4 on page 26.

Answer frame 4^4

1. False. Babies that are small for birth date or have a low birth weight may have developmental difficulty similar to the short gestation period child.
2. True. Some abnormalities are linked to chromosomes occurring in triplicate (trisomy); others result from chromosomes occurring as singletons (autosomal monosomics). The improper division of chromosomes is called *nondisjunction*.
3. True. Males suffering from Klinefelter's syndrome show incomplete sexual development that is often associated with mental retardation. Females suffering from Turner's syndrome have a similar incomplete sexual development and often have cognitive and perceptual deficiencies.
4. True. During the first two periods of conceptual development, a baby is particularly susceptible to environmental factors such as drugs, nutritional imbalance, and disease.

If you missed any of the above, you should review Frame 4^4 before turning to Frame 5^4 on page 27.

Frame 5^4 continued

with multiparous mothers (having given birth previously) than with primiparous mothers. Given the significance birth has for subsequent development, it is somewhat surprising that the effects of labor and delivery have not been extensively investigated. Investigators have found that the medications used during labor and delivery can affect the newborn's responsiveness for as much as one month after birth. Although commonplace in American culture, analgesics and anesthetics are the exception rather than the rule in many other cultures. For example, "natural childbirth" has long been the cultural practice in the Soviet Union.

Some early psychoanalytic theorists suggested that to a large extent one's subsequent development was devoted to the resolution of birth trauma. Although trauma in this sense is not generally accepted today, trauma in the physiological sense is quite a real phenomena. The cardiovascular and respiratory systems appear to be most significantly affected. That is, the newborn infant must give up his dependence on the maternal life systems and rely on his own biological systems for life support.

Most infants are delivered (presented) in the *vertex* position, which means that they move through the birth canal head first. If the infant lies across the uterus, the position is called *transverse* and anoxia (lack of oxygen) is a particular problem due to the delay in the presentation of the head. Moreover, damage to the head region—especially the hippocampal region of the cerebral cortex—is possible. *Breech* presentation refers to the buttocks emerging before the head and legs. *Caesarean* section refers to surgical removal of the conceptus through the abdomen often made necessary because the maternal birth canal is too small to accommodate the size of the infant.

True or false?

_______1. A woman who is excessively nervous and tense during pregnancy may have an adverse effect on her child's development.

_______2. Dilation of the cervix in association with labor pains marks the beginning of *parturition* or labor.

_______3. Investigators have found that medications used during labor and delivery can affect the baby's responsiveness for as much as one month after birth.

_______4. The position a baby is in (head first, feet first, etc.) at birth may have an effect on its later development.

Now turn to Answer Frame 5^4 on page 30 to check your answers.

chapter 5

GROWTH AND DEVELOPMENT: INFANCY AND EARLY CHILDHOOD

Frame 1^5

Four prominent characteristics of the newborn infant are its appearance, dependence, individuality, and competence. With regard to *appearance,* the typical newborn has *(a)* no voluntary control of his musculature which results in spontaneous random movements especially noticeable in the extremities; *(b)* inactive tear glands; *(c)* light to heavy growth of fine textured hair over the body surface; *(d)* a bulging abdomen; *(e)* a broad and flat face as a result of lacking teeth, having a flat nose and underdeveloped jaw; *(f)* disproportionately small arms, legs, and trunk compared to head size; and *(g)* soft skin with pink to bluish caste and blotches primarily in the region of the head.

Of all infant organisms, the human infant is most *dependent* upon its caretakers for development and survival. It has been suggested that this long period of dependency evolved to assure sufficient time for the human infant to master the complex skills that will define him as an adult.

One of the notable phenotypic indices of *individuality* is the newborn's level of activity. The extent to which individual differences in activity level relate to other developmental phenomena (e.g., mother-infant interaction, sensory or stimulus processing, learning, etc.) is a question receiving considerable attention among infant researchers.

Contrary to the historical notion that the new-

Answer frame 5⁴

1. True. While it is true that there are no direct neural connections between mother and conceptus, maternal emotional state may influence the developing child through the creation of an excessive outflow of various hormones which may cross the placenta and interact with the conceptus.
2. True. Timing of the pain is important, with a regularity of every four minutes suggesting that the baby is about due.
3. True. Given the significance birth has for subsequent development, it is somewhat surprising that the effects of labor and delivery have not been more extensively investigated.
4. True. Most infants are born head first (vertex). If the infant lies across the uterus, the position is called *transverse* and lack of oxygen and damage to the brain is possible. Breech presentation refers to the buttocks emerging before the head and legs. This too may be dangerous because of damage to the head region.

If you missed any of the above, restudy Frame 5⁴ before beginning Chapter 5 on page 29.

Frame 1⁵ continued

born is a rather passive unresponsive organism, contemporary research suggests that in many respects the newborn is quite *competent*. Within a few hours and/or days after birth, the newborn's olfactory, visual, auditory, tactile, and vestibular systems are functional, although not necessarily at an adult level. Moreover, as every new parent can attest, the newborn can cry, sneeze, wheeze, hiccough, spit up, lift his head, suckle, eliminate, etc. Add to these behaviors the rich repertoire of reflexes at the newborn's command, and it becomes clear that the newborn infant possesses a rather rich behavior repertoire.

An important requirement for the newborn's survival is the establishment of *homeostatic regularity*, that is, the tendency to achieve relatively stable physiological conditions by internal regulatory mechanisms. Although cyclic rhythms are not present in the newborn, they make their appearance quickly. Rhythms for skin resistence, body temperature, and heart rate emerge during the first six weeks of life. In contrast to the adult's 70-beat-per-minute heart rate and 18-respiration-per-minute breathing rate, the newborn's heart rate ranges from 130–50 beats per minute while its respiration rate may reach as many as 100 per minute. The newborn's body temperature is higher and more variable than the adult's. Thus a temperature of 102° F. in a baby has different significance than the same temperature in an adult.

Sleep appears to serve several important biological functions. These include *(a)* providing sufficient *endogenous* stimulation (produced from within the organism) to compensate for the lower amount of *exogenous* stimulation (produced from without the organism) received by the infant; *(b)* assisting in the strengthening of the oculomotor system; and *(c)* providing sufficient rest for gradual stabilization of the physiological systems that are so vital for the organism's survival. While these functions are important at all levels of development, they are particularly important to the infant because of his high degree of biological immaturity. Sleep patterns tend to be unstable at first with short waking periods interspersed among longer sleeping periods. For example, the newborn infant sleeps approximately 18 hours per 24-hour period. Quiet sleep is characterized by regular respiration and decreased physical activity. In adults, rapid eye movements (REMs) occurring during sleep provide one indication that dreaming is taking place. Interestingly, REM sleep occurs in a greater percentage of infant sleep time than in adult sleep time—roughly 50 percent compared to 14–18 percent. Perhaps this trend is related to the infant's greater need for endogenous stimulation.

Indicate whether each of the following statements is true or false by writing "T" or "F" in the space provided.

_______1. One of the most notable phenotypic indices of *individuality* is the newborn's level of activity.

_______2. Most newborn infants are rather passive and unresponsive and do not exhibit many behavioral responses.

_______3. Infants do not need to achieve the same stable physiological conditions that adults need for comfort and survival because their systems are not as sensitive.

_______4. Sleep is not important to an infant because of his or her biological system, and babies often cry during the night because they do not need the sleep their parents demand.

Now turn to Answer Frame 1^5 on page 32 to check your responses.

Frame 2^5

INFANCY

The infant's repertoire of reflexes is of considerable importance because it provides one of the major mechanisms for investigating the normal or abnormal development of the central and peripheral nervous systems. Infant reflexes have proven to be useful dependent variables in a variety of research areas including learning, perception, attention, sensation, and cognition. Reflexes account for the major portion of most developmental-neurological examinations during the early months of life. It is important to note that not all reflexes are present at birth. For example, the lateral propping, tilt, and parachute reflexes appear five to nine months postnatally. The failure of these reflexes to make their appearance at the prescribed developmental time may suggest inadequate nervous system development. On the other hand, the Moro reflex, which is regulated by the lower brain stem, is a reflexive extension of the arms followed by flexion, extension of the spine and legs, and a fanning and clenching of the hands in response to a variety of stimuli. Upon sufficient development the cortex inhibits the reflex from occurring, and thus presence of the reflex may suggest deficient cortical functioning. Table 5.1 shows a selective list of some of the disappearing reflexes and the approximate age at which each disappears.

TABLE 5.1

Reflexes that drop from infants' behavior repertoire

Reflex	*Approximate age reflex disappears*
Rooting	1 mo.
Doll's eye	1 mo.
Galant	2–3 mos.
Reflex grasp	3–4 mos.
Swimming	4–5 mos.
Moro	4–5 mos.
Perez	4–6 mos.
Stepping	6 mos.
Tonic-neck	6–7 mos.
Toe grasp	8–12 mos.
Neck righting	9–12 mos.
Babinsky	2 yrs.

During infancy, growth proceeds in a fairly organized fashion. For example, most infants progress through the sequence of sitting-creeping-crawling-standing-walking on their way toward upright locomotion and posture. Moreover, there are clear developmental changes in height, weight gain, and body proportion—head size becomes proportionately less of total body size as legs, arms, and trunk elongate. Although descriptions of typical or average children abound in child development literature, the crucial point to remember concerning development is that great variability occurs in developmental growth rates. Some infants skip or pass quickly the creeping stage of upright locomotion. Moreover, there is great variability in height and weight gain during infancy as indicated by Table 5.2

While little is known of the developmental significance of sex and race differences in physical maturation, such differences have been reported. In general, girls mature at a faster and more stable rate than do boys; and for some aspects of physical growth, Negroes and Orientals mature more rapidly

Answer frame 1^5

1. True. The extent to which individual differences in activity level relate to other developmental phenomena is a question receiving considerable attention among infant researchers.
2. False. Contemporary research suggests that in many respects an infant is quite *competent.* Within a few hours and/or days after birth the newborn's olfactory, visual, auditory, tactile and vestibular systems are functional, but not necessarily at an adult level.
3. False. An important requirement for an infant's survival is the establishment of homeostatic regularity, that is, the tendency to achieve relatively stable physiological conditions by internal regulatory mechanisms.
4. False. Sleep is important to infants because of their biological immaturity. Sleep serves several important biological functions including providing endogenous stimulation, strengthening of the oculomotor system, and providing rest for the gradual stabilization of the physiological systems.

If you missed any of the above, you should restudy Frame 1^5 before turning to Frame 2^5 on page 31.

Frame 2^5 continued

TABLE 5.2

Range in height and weight for boys and girls from birth to age six

	Birth	*6 mos.*	*1 yr.*	*2 yrs.*	*4 yrs.*	*6 yrs.*
Height (in.):						
Boys:						
Tall	23	29	33	38	46	50
Short	16	23	26	30	37	40
Girls:						
Tall	22	30	33	38	42	50
Short	17	23	26	30	36	39
Weight (lbs.):						
Boys:						
Heavy	13	27	33	39	49	66
Light	6	13	15	20	28	31
Girls:						
Heavy	13	25	33	37	51	67
Light	5	12	16	19	27	33

than do their white counterparts. The following summarizes some of the major areas of physical growth over the first two years:

Zero to three months

Prehension. Initially, the bones are soft and pliable, consisting of cartilaginous material. Soft spots called *fontanelles* are on the cranium. Infants become increasingly aware of hands and can be seen lying in their cribs staring at them.

Activity. Infant gradually decreases random movements and acquires voluntary control—notable in the upper extremities. Infant begins reaching for objects and losing reflexive grasp.

Posture. Infant shows decrease in head lag when pulled to a sitting posture and can sit briefly with support. Towards the end of this period, he can roll from side to back.

Elimination. Micturition (wetting) occurs about 18 times per 24-hour period. Bowel movements decrease from three to five times daily to about twice daily.

Three to six months

Prehension. Regards objects in hand and becomes increasingly in control of thumb and fingers. He looks from hand to object and moves arms as if desiring to reach objects; can pick up and drop things voluntarily as well as throw objects; and lies staring at opening and closing of hands.

Activity. There is an easily observed increase in voluntary control of upper extremities and beginning control of lower extremities. Infant can roll from back to side and side to back.

Posture. In addition to being able to roll over, infant makes his initial attempts at locomotion. These early attempts consist of "dragging" himself forward with the arms; there being little involvement of the lower extremities. Sitting alone for brief periods is possible, although sitting posture is unstable in most infants of this age.

Elimination. Bowel movements are associated with feeding and waking, and there is a noticeable decrease in the number of wettings per day.

Label each of the following statements as true or false.

_______1. The infant's repertoire of reflexes is of considerable importance because it provides one of the major means for investigating the normal or abnormal development of the brain and nervous system.

_______2. There is little difference in the developmental growth rates of children.

_______3. Between the time of birth and age three months infants become increasingly aware of hands, stare at them, and begin reaching for objects.

_______4. Children from three to six months can pick up and drop things voluntarily, can roll from back to side, and can sit alone for brief periods.

Now turn to Answer Frame 2^5 on page 34 to check your answers.

Frame 3^5

Six to nine months

Prehension Objects are obtained by raking movements with palm playing a significant role in picking up objects. There is good voluntary control of grasp, and infant begins to transfer objects from one hand to another.

Activity. Infant now spends considerable time manipulating objects in his environment and in developing his crawling skills.

Posture. Infant sits unsupported for short time with sitting posture becoming increasingly stable. He rolls over easily, crawls, and begins to stand with support. Early stepping movements appear when infant is supported.

Elimination. Infant increases the regularity of his voiding and mictuitions. Many parent begin potty training toward the end of this period, although this is generally not recommended.

Nine to twelve months

Prehension. Infant displays inferior pincer grasp. Early in the period infant approaches objects with index finger extended; later in the period he can pick up object using thumb and finger.

Activity. Infant has continued sophistication of gross motor skills and increase in activities involving fine motor coordination; he can manipulate objects and toys.

Posture. Infant can now stand unassisted, although quite unstable. He learns to voluntarily sit down and pull himself to standing position. He can move from prone position to sitting posture without assistance. Some infants can walk unassisted, though unstable, and frequently fall.

Elimination. There are increasing periods of dryness reflecting the infant's advancing to the point of voluntary control in the toddler period. Fairly regular pattern of bowel movements is achieved.

Twelve to eighteen months

Prehension. Infant has initial skills at holding crayons and similar objects as well as interest in scribbling and is capable of playing with toys requiring objects to be placed in holes or slots. Towards the end of this period the toddler can successfully work simple puzzles.

Activity. Infant pulls toys around the room, reaches for objects, and can open doors and drawers. There is a beginning of intense interest in exploring home environment. Initial attempts at running, jumping, and hopping are evident. Infant can walk sideways and backwards. He can negotiate stairs alone.

Posture. Infant walks unassisted and seldom falls. He can sit in small chair unassisted as well as walk, run, jump, etc.; and he climbs up onto chairs and other objects. Infant may still have difficulty getting down from high places, however.

Elimination. Toilet training fairly well established during this period if begun around nine months. If just beginning toilet training, infant will usually become accomplished in much shorter time than if begun during first year of life. From about 18 to 30 months, the infant achieves about 90 percent control.

Answer frame 2^5

1. True. For example, the lateral propping, tilt, and parachute reflexes appear at the age of five to nine months. The failure of these reflexes to occur at the proper time may indicate inadequate nervous system development.
2. False. Although there are many descriptions of "typical" or "average" children in child development literature, the crucial point to remember is that great variability occurs in developmental growth rates.
3. True. During this period, children can also roll from side to back. Much to the chagrin of parents, children at this age wet their diapers about 18 times per 24-hour period.
4. True. The first attempts at crawling are also made. Much to parents' relief, there is a noticeable decrease in the number of wettings per day.

If you missed any of the above, you should reread Frame 2^5 before turning to Frame 3^5 on page 33.

Frame 3^5 continued

True or false?

________1. At six–nine months a child develops good voluntary control of grasp, can sit unsupported for a short time, and can step when supported.

________2. At 9–12 months most infants can walk easily.

________3. At age 12–18 months, a child can walk sideways and backwards and can negotiate stairs alone.

________4. Children who do not reach these stages of development at the normal time should be considered abnormal and demand exceptional care and training.

Now turn to Answer Frame 3^5 on page 36 to check your answers.

chapter 6

GROWTH AND DEVELOPMENT: CHILDHOOD AND ADOLESCENCE

Frame 1[6]

For *somatic* growth, or growth in height and weight, the very rapid growth of infancy and early childhood is followed by growth at slower and slower rates through middle childhood. At the average ages of about 11 for girls and 13 for boys, the adolescent growth spurt begins. Rate of growth increases sharply, reaching a peak *(maximal growth rate)* in about six months to one year. It then declines, to be followed by slow continuous growth for several more years. During this growth spurt, changes are also seen in body proportions, bone development, and, in fact, in all parts of the body except for the head and brain and related tissues. While changes in body proportions occur for both boys and girls, the kinds of changes that occur are different. The very similar bodies of preadolescent boys and girls take on the characteristically differing proportions of adult men and women.

Other body attributes besides height and weight which change over this time period do not all follow the same time course: growth is *asynchronous.* Body tissue and brain and head tissue (including eyes, neural development, and head dimensions) grow most rapidly during the early years of life. In later childhood and adolescence, the growth rate is very slow and no growth spurt occurs. Lymphoid tissue, in contrast, grows very rapidly throughout childhood, reaching a peak at about the time of the onset of the adolescent growth spurt. At that time, lymphoid tissues are considerably enlarged over their adult size, and through the adolescent years they decrease in size to their adult proportions.

The most dramatic change in this period involves *reproductive growth* and the advent of *puberty,* or onset of sexual maturity and its related changes. *Androgens* and *estrogens* (male and female sex hormones, respectively) have been secreted at low and very slowly increasing quantities during early and middle childhood. At about the time the somatic growth spurt begins, the rate of production of these hormones begins to rise, triggering the beginnings of puberty. In girls, breast buds, appearing at about 11 years of age, usually are the first sign of impending puberty. *Menarche* (first menstruation, which occurs at about age 13) is usually taken to indicate the advent of puberty. In boys, increased rate of growth of testes and scrotum are usually the first signs of puberty, followed about one year later by acceleration of growth of the penis and of pubic hair. The advent of these changes usually coincides with the beginnings of the height-weight growth spurt. There is less agreement as to the best indicator of the onset of puberty for boys than for girls. Typical indicators used are the advent of pubic hair or the time of first ejaculation. In fact, some investigators maintain that *skeletal age,* or degree of ossification of the bones, is the most reliable indicator of physical maturity for both boys and girls.

Among other changes which occur during this period are the appearance of axillary (underarm) hair in both boys and girls. Changes in body hair include the appearance of chest hair and facial hair for boys. Changes of voice occur for both sexes, although the change is more pronounced for boys.

Answer frame 3⁵

1. True. Infants at this stage spend considerable time manipulating objects and in developing crawling skills.
2. False. A child can stand unassisted at this stage, although quite unstable. Some infants can walk unassisted, although they frequently fall. Fairly regular bowel movements are achieved, so toilet training may begin around nine months.
3. True. Toward the end of the period the child also can successfully work simple puzzles. Toilet training goes much faster if done during this period rather than during the first year.
4. False. It is important to remember that great variability occurs in developmental growth rates. Some children develop more rapidly than others. This is the "normal" experience. A child who develops slowly may be quite normal and needs only the usual care and training of a healthy child.

If you missed any of the above, you should restudy Frame 3⁵ before turning to Chapter 6 on page 35.

Frame 1⁶ continued

This is to their frequent embarrassment when during the transition period they find their voices "breaking" at inconvenient times. Skin texture also changes, with pores becoming larger and sebaceous (sweat) glands becoming very active. These latter changes are often responsible for the appearance of the acne which plagues so many adolescents.

The very marked individual variation in the time of onset of puberty, growth spurt, and related changes cannot be overstressed. For instance, for girls menarche is usually reached between the ages of 11 and 15, but may occur as early as 9 or as late as 20 years of age. For boys, acceleration of growth of the penis usually begins between 11 and 14 years of age, but may begin earlier or later. For both sexes, some individuals may be completely mature while others of the same chronological age have not yet reached puberty. For example, in one large study of normal boys, 7 percent of the 14-year-olds were already fully mature sexually while 17 percent of the 20 to 21-year-olds were still in the last stages of pubescence. Many adolescents and their parents could be spared a good deal of unnecessary worry and concern if it were more widely understood and accepted that normal development shows such wide variability.

Although different systems mature at different times (asychrony), the pattern of growth for each individual is a very regular phenomenon. Individuals go through the phases of maturing in the same sequence, regardless of whether they begin early or late. Further, there are close relationships between timing of different aspects of change. For example, the correlation between age of height spurt and the onset of accelerated growth of testes for boys is 0.86, and the correlation between age of height spurt and appearance of breast buds for girls is also 0.86. The individual who is early (or late) in one aspect of development will be early (or late) in other aspects as well.

Indicate whether each of the following statements is true or false by writing "T" or "F" in the space provided.

_______1. Somatic growth, or growth in height and weight, is greatest around the ages of 8–10 for adolescents.

_______2. Body attributes besides height and weight (such as lymphoid tissue, body tissue, and brain and head tissue) grow at the same rate and time as height and weight.

_______3. The most dramatic change during adolescence involves reproductive growth and the advent of puberty.

_______4. The onset of puberty, growth spurt, and related changes vary little among adolescents and fall into readily defined time periods.

_______5. Although different systems mature at different times, the pattern of growth for each individual is a very regular phenomenon.

Now turn to Answer Frame 1^6 on page 38 to check your responses.

Frame 2^6

Puberty and adolescence. While puberty is one of the main events which defines adolescence, the two are not the same thing. Adolescence refers not only to the universally occurring biological changes of puberty resulting in adult sexual attributes but also to psychological and social changes which differ across social settings. In Western cultures, and particularly American culture, there is no clear-cut demarcation between adolescence and adulthood. Among the frequently mentioned socially defined hallmarks of adulthood one might list economic independence of family and entry into the work force, taking on the responsibilities of marriage and family, and reaching legal age. Frequently mentioned psychological hallmarks include being able to enter into an intimate love relationship with someone of the opposite sex (often assumed to be, although not necessarily, contingent with marriage) and development of a stable sense of identity. Obviously, many individuals may be adults by some of these criteria but adolescents by others. In fact, it is just this in-between nature of the adolescent period, when one is no longer a child but not yet fully an adult, which gives adolescence some of its particular character.

Frequently this period of transition—as one is learning to handle newly developed sexual impulses for which free expression is proscribed, adjusting to a much-changed body, coming to terms with newly encountered social role expectations, and beginning to make vocational and other decisions which may profoundly influence the rest of one's life—is a period of considerable conflict and turmoil for the individual going through it. Early writers on adolescence called this conflict *Sturm und Drang* (storm and stress) and believed it to be a universal phenomenon of youth, triggered by the far-reaching biological changes of puberty. Anthropologists, notably Margaret Mead, later described cultures in which such turmoil was largely absent. Typically, in such cultures role expectations are clear-cut; choices are fewer and hence identity conflicts are fewer; and there is no prolonged delay between the advent of sexual maturity and the opportunity for socially acceptable sexual expression. There is no prolonged period of education and preparation for vocation during which one is dependent on the family. It became clear that many of the stresses of adolescence are dependent upon social milieu rather than being innate concomitants of sexual maturity. The thesis was advanced that the phenomenon of adolescence as assumed in this discussion was particularly a product of industrialization, with its demands for prolonged training for specialized skills and its production of the affluence necessary for economic support of a large group of dependents during this training period. According to this line of thought, adolescence is a relatively recently evolved social phenomenon. Further, it is one which is still evolving, particularly within the middle class and particularly in Western cultures.

Label each of the following statements as true or false.

_______1. Adolescence and puberty are really the same thing.

_______2. In the American culture there is a clear-cut demarcation between adolescence and adulthood marked by the establishment of a love relationship with someone of the opposite sex.

_______3. The conflict of adolescence was referred to as *Sturm und Drang* by some early writers.

_______4. The period of adolescence is a time of turmoil for individuals in all cultures because of the prolonged delay between the advent of sexual maturity and the opportunity for socially acceptable sexual expression.

Now turn to Answer Frame 2^6 on page 38 to check your answers.

Answer frame 1^6

1. False. At the average ages of about 11 for girls and 13 for boys, the adolescent growth spurt begins.
2. False. The four main types of body tissue and brain and head tissue grow more rapidly during the early years. Lymphoid tissue, on the other hand, grows very rapidly throughout childhood and *decreases* in volume during adolescence.
3. True. In girls, breast buds, appearing at about 11 years, usually are the first sign of impending puberty. Menarche (first menstruation) at about age 13 is usually taken to indicate the advent of puberty. There is less agreement as to the best indicator of the onset of maturity for boys. Typical indicators include the advent of pubic hair or the time of first ejaculation.
4. False. Many adolescents and their parents could be spared a good deal of unnecessary worry if it were understood and accepted that normal development at adolescence shows very wide variability.
5. True. Individuals go through the phases of maturing in the same sequence regardless of whether they begin early or late.

If you missed any of the above, you should restudy Frame 1^6 before turning to Frame 2^6 on page 37.

Answer frame 2^6

1. False. Adolescence refers not only to the universally occurring biological changes of puberty but also to psychological and social changes which differ across social settings.
2. False. There are many sociological and psychological hallmarks of adulthood in American society, but most individuals meet only some of the criteria and not others. It is the in-between nature of the adolescent period which gives it some of its particular character.

True. *Sturm und Drang* (storm and stress) was believed to be a universal phenomenon of youth, triggered by the far-reaching biological changes of puberty.

4. False. Anthropologists, notably Margaret Mead, have described cultures in which such turmoil was largely absent. It became clear in their studies that the stresses of adolescence are dependent upon social environment rather than being necessarily linked to sexual maturity.

If you missed any of the above, you should reread Frame 2^6 before beginning Frame 3^6 below.

Frame 3^6

Body build and personality. It is an inescapable fact that every human being comes in a body. It is further inescapable that attributes of that body will have far-reaching effects for psychological development. Perhaps the physical attribute having most obvious and pervasive consequences is whether one's body is male or female. Discussion of sex differences appears under many of the other topical headings in this volume. While not much is known yet about the relationships between other physical attributes and psychological development, there are a few relationships for which information is available. These relationships are the topics for this section.

Off and on since the time of Hippocrates (Ca. 400 B.C.) theorists have attempted to classify human body types and to describe the attributes characteristic of given body types. The classification system currently most prevalent came originally from the work of W. H. Sheldon, who proposed that there were three basic *somatotypes* or body types, each having an associated temperament. *Ectomorphs* are tall and thin (linear). They are described as *cerebrotonic*—being cool, detached, inhibited, anxious, self-centered. *Endomorphs* are short, thick-torsoed, and likely to be fat (circular). They are described as *viscerotonic*—pleasure loving, warm, forgiving, calm, dependent. *Mesomorphs* are muscular, broad-shouldered, and thin-hipped (triangular). They are described as *somatotonic*—dominant, active, self-assured, risk taking, reckless. Sheldon assumed that there was a direct causal relationship between body build and temperament. Subsequent research supported his contention rather weakly, and his ideas have fallen into disrepute. More recently, however, researchers have been asking whether there might not be an indirect relationship between body build and personality, mediated at least in part by social stereotypes and the concomitant expectations encountered by individuals having particular body builds. If this were so, there must be widely held stereotypes associated with given body types. In fact, consistent and clear stereotypes have been found in studies of college men, 4- to 10-year-old boys, and 6- to 10-year-old boys and girls. Typically, individuals were shown silhouettes of figures and asked whether each of a number of attributes was likely to be true of such a person. Mesomorphy was clearly the most desirable body build. Mesomorphs were assigned attributes such as leadership, athletic ability, self-sufficiency, having many friends, preferred as a friend, not likely to drink or smoke, and unlikely to have a nervous breakdown. Endomorphs elicited the most negative picture, being ascribed attributes such as being least likely to be chosen a leader, least preferred as a personal friend (though having many friends), poorest athlete, poorest doctor or university president, eating and drinking most, least aggressive, and likely to put his own interests before those of others. Ectomorphs elicited stereotypes including attributes such as likely to have a nervous breakdown, to smoke heavily, to need friends, to be unable to hold his liquor, to make a poor father. These consistently found stereotypes were strongly established by the age of six. While there is less information on girls than boys, girls' stereotypes appear to be at least as strong as boys' stereotypes. Clearly, the social expectations encountered by children having different body types are going to be quite different. Less clear are the questions of the amount and type of effect which the presence of such stereotypes has on individuals, although it appears that there are such effects. One study related self-descriptions of temperament, where the self-descriptions were classified according to Sheldon's temperament types, to independently obtained somatotype ratings for 100 high school senior boys, 100 college girls, and 20 adult male prisoners. For all groups, correlations between body build and self-ascribed temperament were significant.

In thinking about the relationship between body build and temperament, one should bear in mind the following points: (1) although stereotypes are strong and consistent, they may be different for different social groups and they almost certainly differ across cultures; (2) the extent to which different individuals encounter these stereotypes is bound to vary; (3) even when amount of exposure is similar, effects may differ for individuals depending on characteristics such as responsiveness to group pressures and existing self-concept; (4) somatotype does not necessarily remain constant over age (the skinny 10-year-old may be fat at 14 but nicely proportioned and well muscled at 23); and (5) most individuals represent some blend of somatotypes—relatively few persons are extreme endomorphs, ectomorphs, or mesomorphs.

True or false?

________1. Sheldon proposed that there are three basic body types (somatotypes), each having an associated temperament.

________2. Recent research indicates that there may not be a causal relationship between body type and personality but there may be an indirect relationship mediated at least in part by social stereotypes.

________3. Most individuals can be easily and clearly classified into one of the somatotypes: endomorph, ectomorph, or mesomorph.

________4. The most desirable body build among various age groups is the tall and thin ectomorph.

Now turn to Answer Frame 3^6 on page 40 to check your answers.

Answer frame 3[6]

1. True. Ectomorphs are tall and thin and are described as *cerebrotonic* (cool, detached, self-centered). Endomorphs are short and likely to be fat and are described as *viscerotonic* (pleasure loving, warm, and dependent). Mesomorphs are muscular, broad-shouldered, and thin-hipped and are described as *somatotonic* (dominant, active, and self-assured).
2. True. Consistently found stereotypes based on body types were found to be strongly established by the age of six. It appears that these stereotypes have an effect on individuals, but the extent of the effect is not well established.
3. False. Most individuals represent some *blend* of somatotypes, and a somatotype does not necessarily remain constant over time.
4. False. The most desirable body build was the muscular, broad-shouldered, thin-hipped mesomorph. Mesomorphs are seen to have attributes such as leadership, athletic ability, and self-sufficiency.

If you missed any of the above, you should restudy Frame 3[6]. Then turn to Examination 1 on page 137 which covers Chapters 1–6.

chapter 7

PERCEPTUAL DEVELOPMENT

Frame 1[7]

The term perception means different things to different people, especially if the people in question are psychologists. The flavor of any single definition varies according to one's general theoretical approach in psychology. Some theories emphasize characteristics of the stimuli impinging upon the organism, while others are response oriented. Some theories are quite comprehensive, while others attempt only to account for a specific phenomenon (e.g., a theory of color vision) or relate to specific sense modalities (e.g., a theory of audition). The following provides an exemplary listing of the many perceptual theories (specific discussion of each is, of course, beyond the scope of this PLAID): core context, motor adjustment, texture gradient, cybernetic, cell assembly phase sequence, sensori-tonic field, gestalt, expectancy, motor copy, and differentiation. Each of these theories may offer a slightly different definition of perception—a point to keep in mind while pondering the definition that follows. We prefer the class of definitions that refers to active exploration of the environment and which encompasses the processes by which we extract information from that stimulation available in the environment. *Perceptual development* then refers to the growth of our information-processing abilities and includes *(a)* the structure and function of the sense receptors; *(b)* central neural processes, effector responses, and feedback to the central processes; and *(c)* the individual's cumulative experience with the environment. A perceptual system is an information-receiving, information-processing, information-acting system.

Perception during the prenatal period. Although substantial research has accumulated detailing the effects of environmental and biochemical insult to the fetus, comparatively little research has investigated the effects of environmental stimulation on fetal behavior. What research has been done suggests that the fetus responds to thermal, tactile, auditory, and vibratory stimulation. Much of this research has used motor activity as the major dependent variable. The trouble with such research is that it is difficult to determine whether such activity is directly linked to the sensory capabilities of the fetus or is mediated by the mother's response to the stimulus. In the former case, the fetus would be making a direct response to a perceived stimulus. In the latter case, the fetus would be responding to a stimulus arising in the mother and may or may not have perceived the stimulus itself. This problem is particularly germane to studies that have attempted to demonstrate fetal learning. In one study, classical conditioning of fetal activity was reported to an auditory UCS and a vibrotactile CS delivered to the mother's abdomen. But even this study does not permit us to answer the question of who was conditioned, the fetus or the mother.

Visual perception. Not too many years ago it was thought that the newborn's visual world was a blurred mass of confusion, and to some extent this is true. The newborn's visual acuity is roughly 20/150 to 20/400, and he seems to lack the ability to accommodate until the fourth postnatal month. So-called normal vision (20/20 to 20/15) does not seem to be completely achieved until about the 10th year of life. Nevertheless, there are conditions under which one can demonstrate that the young infant's visual world is far from mass confusion. One of these conditions is eye-to-target distance, the optimal distance being roughly 8–9 inches. At this distance the young infant can make rather precise visual discriminations. Such discriminative ability is usually reflected by differential visual fixation of the targets.

Indicate whether each of the following statements is true or false by writing "T" or "F" in the space provided.

_______1. There has been a general agreement among psychologists as to the meaning of the word perception.

_______2. Perceptual development as described in this book refers to the growth of our information-processing abilities and includes *(a)* the structure and function of the sense receptors (e.g., the eye), *(b)* central neural processes, and *(c)* the individual's cumulative experience with the environment.

_______3. Psychologists have found it relatively easy to measure perception during the prenatal period.

_______4. The newborn's visual world is nothing but a blurred mass of confusion, and no evidence of visual response can be found.

Now turn to Answer Frame 1^7 on page 42 to check your responses.

Frame 2^7

The *visual fixation* method typically takes the following form. The infant lies in a semisupine position. Overhead are one or two panels upon which one can place (or project) a visual stimulus. An observer looks at corneal reflections of the targets such that those targets superimposed on the pupil of the eye are judged to be fixated. Using this technique, infants have been found to have visual preferences for *(a)* social patterns over nonsocial patterns (e.g., human faces versus geometric designs), *(b)* complex targets over simple targets (e.g., checkerboard patterns versus triangles), and *(c)* geometric patterns over solid color surfaces (e.g., checkerboard versus red nonpatterned surface). In general, differ-

Answer frame 1^7

1. False. Each of the many perceptual theories may offer a slightly different definition of perception. We prefer the class of definitions that refer to actual exploration of the environment and which encompass the processes by which we extract information from that stimulation available in the environment.
2. True. A perceptual system is an information-perceiving, information-processing, and information-acting system.
3. False. The trouble with such research is that it is difficult to determine whether fetal response is directly linked to the sensory capabilities of the fetus or is mediated by the mother's response to the stimulus.
4. False. The young infant's visual world is far from mass confusion. At a distance of about 8–9 inches, the young infant shows discriminative ability which is reflected by differential visual fixation on various stimuli.

If you missed any of the above, you should restudy Frame 1^7 before turning to Frame 2^7 on page 41.

Frame 2^7 continued

ential responding is greater to patterned stimuli than to stimuli differing in color, brightness, size, or form. By the second month, there is evidence that infants are able to recognize objects previously seen. This ability is usually demonstrated by use of the habituation procedure (see Chapter 1).

One problem with the visual fixation response is that although an infant may seem to be "looking" at a target, he may not necessarily be actively processing information contained in the target, that is, he may not be actively attending to it. This "looking at but not attending to" phenomenon has been variously described as "centration" and "obligatory attention." The notion is that the infant has been captured by the physical characteristics of the stimulus, that is, he is stimulus bound, and that this capture interferes with his ability to actively attend to the stimulus. To control for this possibility, investigators have turned to multiple-response measurement, incorporating several measures of attention into their research designs. Typically these measures include the directional cardiac response, arm movements, vocalizations, and smiling. This procedure has not been a failsafe solution, however, since quite often there are very poor correlations among these multiple indices of attention.

In addition to showing differential visual fixation or pattern preferences at a very early age, evidence suggests that young infants also can perceive hue and brightness differences. *Depth perception* clearly is present by 10 months, with very recent evidence suggesting that the infant may respond to monocular depth cues as early as the second quarter of the first year of life. *Monocular depth cues* require the operation of only one eye and include linear perspective, clearness, interposition, texture gradients, movement, and accommodation. In contrast, *binocular depth cues* require both eyes; examples are retinal disparity and convergence.

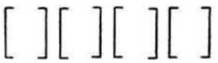
Other questions concerning visual development that have been intensively investigated are: Do children have preferences for specific colors? Are children's preferences for objects a function of the object's form or its color? Do children perceive parts of objects or do they perceive objects as a whole? Are there developmental changes in susceptibility to illusions? Does the orientation of an object (up-down, right-left) affect the child's perception of the object?

Answers to these questions are, of course, quite complex. Several trends have emerged, but keep in mind that there are great individual differences. In general, color discriminations appear to be more difficult than brightness discriminations for preschool and elementary age children. With increasing age we seem to show preferences for blue and red or yellow and for primary colors over secondary colors. Moreover, children do not seem to be as sensitive to colors as are adults. Data on color-form preferences are more stable than are those on color. Developmentally, children show the following changes in the characteristics of objects that influence their preferences or differential responding to objects: size to color, size to form, color to form. In general, form seems to be preferred over color by about the first grade.

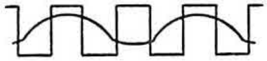
When children look at an object, do they perceive the object as a whole or do they perceive the specific elements of the object and then integrate those elements into a whole? The answer to this question seems to depend on the nature of the object. If the object is complex, children tend to turn to the elements or parts; if the object is simple, then they seem to respond to the object as a whole. In general, the younger the child the more difficulty he has with both part and whole perception. Some of the factors that influence the organization of perceptual information are illustrated in Figure 7.1. Evidence concerning the importance of spatial orientation suggests that although preschool age children can learn to use such cues, they do not depend on such cues for accurate perception. For example, quite young children are capable of identifying the objects in a picture, even if the picture is held upside down. Nevertheless, one must be extremely cautious when formulating general conclusions concerning spatial orientation until substantially more research is conducted. Regarding illusions, there are developmental changes in one's susceptibility to illusions. However, these changes are partly a function of the specific illusion in question. For some illusions, susceptibility increases with age; while for other illusions, susceptibility decreases with age.

FIGURE 7–1

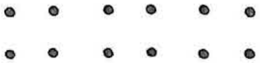
Examples of the factors that influence the organization of perceptual information



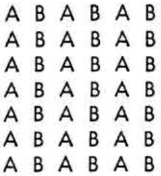
Closure (we tend to see four rectangles despite close back-to-back spacing of brackets.)



Continuity (we tend to see two distinct figures)



Proximity (groupings are based on nearness)



Similarity (similar items tend to be grouped)

Label each of the following statements as true or false.

_______1. Infants have been found to have visual preferences for color, brightness, size, and form rather than patterned stimuli.

_______2. It is clear from past research that infants not only look at but actively process information from visual stimuli.

_______3. Depth perception in a child is not present until the third quarter of his second year.

_______4. Developmentally, children respond differentially to characteristics of objects in the following order: size to color, size to form, color to form.

_______5. If an object is complex, children usually perceive the specific elements of the object, but if the object is simple, they seem to respond to the object as a whole.

Now turn to Answer Frame 2^7 on page 44 to check your answers.

Answer frame 2^7

1. False. In general, response is greater to patterned stimuli (e.g., checkerboard versus red non-patterned surface or triangles).
2. False. Infants may look at but not attend to visual stimuli. It is not clear what processes take place. Researchers have turned to multiple-response measurements to control for "centration," but these measures have not proved failsafe.
3. False. Depth perception clearly is present by 10 months, and recent evidence suggests that infants may respond to monocular depth cues as early as the second quarter of the first year.
4. True. In general, form seems to be preferred over color by about the first grade.
5. True. Some of the factors that influence the organization of perceptual information are: figure-ground relations, closure, continuity, proximity, common movement, and similarity.

If you missed any of the above, you should reread Frame 2^7 before beginning Frame 3^7 below.

Frame 3^7

Auditory perception. The newborn infant can hear, but he hears best when sounds are loud. The residual amniotic fluid temporarily blocks the normal vibration of the ossicles in the middle ear, thus slightly louder sounds are necessary to elicit vibration. Nevertheless, auditory sensitivity is sufficiently well established in the newborn to permit testing for deafness at even this early age. By about four months infants can localize a sound source. Little has been done in an attempt to study systematically the ontogeny of localization cues, at least, in comparison to the analogous binocular and monocular cues in vision. There are three *binaural cues* that assist in sound localization: time difference (difference in time between sound reaching one ear and then the other); intensity difference (intensity of sound is weaker at the ear opposite from the sound source); and phase difference (differences in sound pressure waves between the two ears).

By elementary school years, children show marked improvement in auditory acuity. The full range of acuity in human beings is roughly 20 to 20,000 cycles per second. Maximum acuity, however, is for sounds ranging from 1,000 to 4,000 cycles per second. Boys and girls show different developmental patterns in auditory acuity. For girls, there is a slight decrease in ability to hear low tones that occurs during adolescence. For boys, there is both an increase in acuity for low tones and a decrease in acuity for high tones. Overall, boys hear low tones better and high tones worse than do girls.

Very little research has attempted to study the relationship between auditory perception and perceptual abilities in other sense modalities; this has not been the case for visual or tactile perception.

Time perception. Time is not generally considered to be a separate sensory modality. Nevertheless, owing to the rich research interest which "time" has consistently generated, we will accord it, at least, the status of a sensory modality in this PLAID. Studies of time range from physiological studies of biological rhythms to the development of concepts of time. *Biological rhythms* that have an approximate 24-hour cycle (circadian rhythms) appear shortly after the newborn period and reach their adult form gradually over the preschool and kindergarten years. The menstrual cycle rhythm is, of course, the most obvious of the biological rhythms; and as we previously noted, it is an important index of the onset of puberty. Other biological rhythms include heart rate periodicity, body temperature, skin resistence, sodium and potassium content of the urine, and rapid eye movement (REM) sleep.

Temporal conditioning (responding appropriately to fixed intervals of time) has been demonstrated in subjects ranging from early infancy to adulthood. These studies usually involve responses that are mediated by the autonomic nervous system. On the other hand, gross motor activity that accompanies the infant's preparedness to feed suggests that somatic activity or motor activity may also be subject to temporal regulation. The strongest evidence of the importance of temporal regularity in motor activity is provided by studies of the development of locomotion, that is, walking, running, jumping, etc.

By and large the major work in time perception has involved *(a)* discrimination of the length of time intervals, *(b)* discrepancies between real time and subjective time, *(c)* concepts of time, and *(d)* personality correlates of temporal processes. Studies of time discrimination are relatively uniform in obtained results: short intervals of time tend to be overestimated, long intervals tend to be underestimated, and accuracy in time discrimination increases with increasing age. Concepts of the present, future, and past appear in sequence during the preschool years. Four-year-olds distinguish between morning and afternoon; five-year-olds distinguish the days of the week; seven-year-olds, the months and seasons; eight-year-olds, the years and days of the month. Personality variables such as willingness to delay gratification, antisocial behavior, intelligence, and achievement motivation have been studied in relation to time perspective.

Label each of the following statements as true or false.

________1. Researchers have spent more time systematically studying auditory perception such as localization cues than they have on comparable visual cues.

________2. By elementary school years, children show marked improvement in auditory acuity.

________3. All of us have biological rhythms that affect our behavior.

________4. Studies of time discrimination are relatively uniform in obtained results: short intervals of time tend to seem shorter, long intervals tend to seem longer, and accuracy in time discrimination decreases with age.

Now turn to Answer Frame 3^7 on page 46 to check your answers.

Frame 4^7

Tactile perception. For many psychologists the study of perceptual development is synonymous with the study of visual perception. If any sense modality qualifies as a serious contender to this point of view, it would probably be the tactile or touch modality. The earliest active exploration of the environment is largely accomplished through our sense of touch, including oral exploration as well as prehensile exploration. From the newborn period through adulthood, girls tend to be more sensitive to tactile stimulation than are boys. As late as ages 8 to 12, our ability to localize is superior in the tactile modality when compared to visual localization. Ability to localize both tactually and visually greatly improves during puberty. Thereafter, visual localization becomes superior. Much of the tactile localization research has compared the abilities of blind, blindfolded-sighted, and sighted subjects. In general, these studies show that *(a)* blind adults are superior to blind children and to blindfolded-sighted adults and *(b)* sighted children are superior to sighted adults and to blind children.

Other sense perception. Developmental studies of olfaction (smell), taste, and temperature have been sorely neglected despite the fact that the newborn has been found to be capable of perceptually discriminating among stimuli in each of these modalities. Our knowledge of perceptual sensitivity among stimuli in these modalities is based on the performance of adults. In one rather interesting study with children, change in the size of the pupil of the eye was found to be related to the degree of "oranginess" of drinks.

Perceptual constancies. We tend to see objects as constant, even when the retinal image of the object may be different. Moreover, changes in the angle of perception as well as changes in the distance of the object do not change our perception of the object. Our 6-foot 5-inch friend is perceived as tall whether he is standing next to us or is two blocks away from us. Most of the constancies show the same developmental pattern: constancy is variable during the preschool years, becomes more stable during late childhood, and gradually reaches adult form during the adolescent years. This pattern of development, with some variation, tends to hold for size, form, and brightness constancies.

Perceptual integration. Since man has many perceptual systems (looking, seeing, touching, tasting, smelling, orientation, bodily comfort) through

Answer frame 3^7

1. False. Little has been done in an attempt to study systematically the ontogeny of localization cues in comparison to similar visual cues. There are three *binaural cues* that assist in sound localization: time difference, intensity difference, and phase difference.
2. True. The newborn can hear, but he hears best when sounds are loud. As children reach elementary school age, hearing ability improves greatly.
3. True. The menstrual cycle rhythm is perhaps the most obvious. Other biological rhythms include heart rate periodicity, body temperature, skin resistance, sodium and potassium content of the urine, and REM sleep.
4. False. Short intervals tend to be *overestimated*, long intervals tend to be *underestimated*, and accuracy *increases* with age.

If you missed any of the above, you should reread Frame 3^7 before turning to Frame 4^7 on page 45.

Frame 4^7 continued

which he gains information, it is natural that each of these systems has been independently studied. Equally of interest, however, is the study of how we are able to coordinate information from several sensory inputs. When different stimulus information all originates in the same sensory modality, we talk of *intrasensory integration*. When several different modalities are involved, we speak of *intersensory integration*. Habituation has been a commonly used procedure to study intrasensory integration. Cross-modal equivalence and cross-modal transfer are procedures commonly used to study intersensory integration. *Cross-modal equivalence* requires the subject to match a stimulus presented in one sensory modality with a stimulus presented in another sensory modality. *Cross-modal transfer* requires the subject to apply a previously learned discrimination in one modality to a discrimination task involving stimuli arising from a different sensory modality. Typically these studies have investigated the relationship between visual and haptic (touch plus kinesthetic stimulation) stimuli. The general finding is that children less than four years of age have great difficulty with sensory integration, while those over four years of age readily transfer.

One recent study used the habituation procedure in an intrasensory and intersensory integration situation involving visual and haptic form stimuli. The children in the experiment were nine years old. Habituation of the galvanic skin reflex was found to be related to both intersensory and intrasensory integration. These investigators suggested that there were two processes involved in intersensory function: *formation* of a form model in one sensory modality through active exploration of the form, and *transfer* of the form model from one modality by integrating stimulus information from the two sensory inputs. This suggestion is similar to a motor-copy theory which emphasizes the active exploration of stimuli. Mediation theory explanations of sensory integration emphasize the importance of language as a mediator facilitating children's transfer of information from one sensory modality to another. Differentiation theory suggests that objects have common properties *(amodal invariant stimulus characteristics)* that are not dependent upon the specific sensory modality from which the stimuli arise. According to this theory, these nonspecific modality characteristics provide information that gives unity to the senses and forms the basis of transfer from one modality to another. Although this theoretical battle is far from resolved, the differentiation theory gains increasing appeal as research evidence accumulates.

True or false?

_______1. The earliest active exploration of the environment is largely accomplished through our sense of touch which is nearly as important as sight in our perceptual development.

_______2. Developmental studies of our sense of smell (olfaction), taste, and temperature have been relatively neglected by researchers.

________3. We tend to see objects as constant, even when the retinal image of the object may be different.

________4. When different stimulus information all originates in the same sensory modality, we talk of *intersensory* integration.

________5. Differentiation theory suggests that objects have common properties that are not dependent upon the specific sensory modality from which the stimuli arise.

Now turn to Answer Frame 4^7 on page 48 to check your answers.

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chapter 8

LEARNING AND MOTIVATION

Frame 1^8

Learning and maturation. One of the most striking and fascinating attributes of children for those in close contact with them is the very large amount they learn in the short period of childhood. Yet learning is only one major process through which developmental change takes place. Maturation is a second major process which complements and interacts with learning throughout development.

In very general terms learning is defined *as a change in behavior which occurs as a result of experience.* In comparison, maturation is defined as *change in behavior which occurs regardless of differences in experience.* Normal children everywhere begin to smile within the second or third months of life, regardless of the amount of stimulation (experience) they receive. But children do not begin to read without having special training. Smiling appears to depend primarily upon maturation, but reading is learned.

It may appear from these examples that learning and maturation are distinctly different processes. However, they interact with each other; and under close scrutiny, it becomes very difficult to distinguish between them. Much of what can be learned depends upon the child's level of maturation. At the same time, experience or learning may alter the rate of maturational change.

Although it is clear that learning and maturation interact, exactly how they interact in specific instances is not yet well understood. In fact, theorists do not fully agree with one another on the definitions of learning and maturation. Many would find the definitions given above grossly oversimplified. Until it is possible to agree on what is meant by the terms, it is difficult to show how the processes to which the terms refer influence each other.

Theorists not only define learning differently, but also differ in what they believe to be the major processes of learning. Consequently, there is as yet no single set of concepts in terms of which learning may

Answer frame 4^7

1. True. Tactile perception rivals visual perception in importance to perceptual development. Girls tend to be more tactile sensitive than boys, and ability to localize both tactually and visually greatly improves during puberty for both sexes.
2. True. These areas have been sorely neglected despite the fact that the newborn has been found to be capable of perceptually discriminating among stimuli in each of the modalities. Most research has been with adults.
3. True. Even changes in the angle of perception and distance of the object do not change our perception of the object.
4. False. It is called *intrasensory* integration. When several different modalities are involved, we speak of *intersensory* integration.
5. True. These common properties are called *amodal invariant stimulus characteristics.* This theory, which is gaining acceptance, states that nonspecific modality characteristics provide information that gives unity to the senses and forms the basis for intermodality transfer.

If you missed any of the above, you should restudy Frame 4^7 before turning to Chapter 8 on page 47.

Frame 1^8 continued

be understood. In addition, present theories of learning have been faced with a number of criticisms. For example, they are unable to provide adequate explanations for some major areas of development such as language learning. They are unable to cope well with complex learning such as that which takes place in the classroom. Moreover, many psychologists are unwilling to accept the assumption of some learning theorists that the same set of universal principles of learning apply to all organisms, be they rats, pigeons, monkeys, or human beings. Despite these limitations, concepts from learning theory have been successfully applied to the study of many developmental processes. In this chapter emphasis is placed on two traditional learning procedures: classical conditioning and operant conditioning. Observational learning, a third major type of learning, is discussed in Chapter 14.

Indicate whether each of the following statements is true or false by writing "T" or "F" in the space provided.

_______1. In very general terms maturation is defined as a change in behavior which occurs as a result of experience.

_______2. Although maturation and learning appear to be distinctly different processes, they interact with each other and it is very difficult to distinguish between them.

_______3. Theorists fully agree with one another on the definitions of learning and maturation, for without such general agreement progress is difficult.

_______4. Theorists may not agree on the differences between learning and maturation but they are in complete agreement as to the processes involved in learning.

Now turn to Answer Frame 1^8 on page 50 to check your responses.

Frame 2[8]

Classical conditioning. A description of the process of classical conditioning was given in Chapter 1. To remind the reader of the relevant terms and to provide an illustration of classical conditioning, consider as an example the resistance which many young children show to going to the doctor's office. Shots are painful; other painful or fear-provoking events also occur at the doctor's office. These events would be the *unconditional stimuli.* The child responds, quite understandably, by crying, clinging to mother, struggling to get away from the doctor. These responses are the *unconditioned responses.* The pain or fear that the child experiences becomes associated with other cues which are present—the doctor's white coat, the nurse's white uniform, other aspects of the office with its distinctive furnishings, equipment, and smells. All of these are potentially *conditional stimuli;* none are fear or pain producing in themselves but once associated with pain or fear they elicit *conditioned responses* of crying, resisting, and so on.

This example illustrates two general assumptions which many psychologists have held concerning the role of classical conditioning in development: that classical conditioning is particularly important for establishing emotional responses, and that the role of classical conditioning is particularly great in the early years of life, before language is fully established. These are assumptions. Certainly responses other than emotional ones can be established through classical conditioning. In fact, some theorists argue that all learning is basically classical conditioning. Certainly responses can be classically conditioned throughout the life-span; consider the adult afraid to drive, or even to get into a car, after an accident. At the same time, there is some evidence that at about age six, children begin to show resistance to classical conditioning. It may take longer to establish a given conditioned response in older than in younger children, although the more typical developmental trend is for older children to learn faster.

For many years, most psychologists considered the very young infant to be incapable of learning. However, as more was learned about the neonate and views of his competence changed, psychologists also became more sophisticated in their applications of classical conditioning to the study of learning in the newborn infant. By now it is clear that some responses can be classically conditioned within days and even hours after birth. Evidently the infant begins learning as soon as he is born, within the limits of his capabilities. The latter qualification is an important one: the unconditioned and conditional stimuli must be detectable by the infant's sensory mechanisms, and the response to be conditioned must be one which the infant can make. Examples of responses which have been conditioned successfully are head turning, sucking, eye blinking, pupillary reflex activity, and heart rate.

Other factors also influence conditioning in the very young child. Age is one: the older the child, the more rapidly the conditioned response will be established (at least up to about six years). The nature of the unconditioned and conditional stimuli influences conditioning. Further, the particular combination of conditional and unconditioned stimuli makes a difference. Conditioning may occur for a given conditional stimulus in combination with one unconditioned stimulus but not in combination with another. Just what determines a "winning" combination is not yet fully understood. To further complicate matters, the effectiveness of given conditional stimuli may change with age; for instance, whether seeing a mother's face or seeing a stranger's face is more effective may depend upon how old the baby is.

One other important but insufficiently studied factor influencing conditioning is the baby's state or level of arousal: is he awake, alert, fussy, getting hungry, sleepy? At the obvious extremes, neither a sleeping baby nor a howling baby is going to learn anything. However, there are a number of points between these extremes. Most investigators have not taken into account—or have not reported—these in-between levels of arousal. What evidence is available indicates that babies are just like older people: they learn best when they are alert, awake, and comfortable.

Answer frame 1^8

1. False. *Learning* is defined as a change in behavior which occurs as a result of experience. Maturation is defined as change in behavior which occurs regardless of differences in experience.
2. True. Much of what can be learned depends upon the child's level of maturation. At the same time, experience or learning may alter the rate of maturational change.
3. False. Theorists do not fully agree with one another on the definitions of learning and maturation. Until it is possible to agree on what is meant by the terms, it is difficult to show how the processes influence one another.
4. False. There is no general agreement as to the processes involved in learning. Consequently, there is as yet no single set of concepts in terms of which learning may be understood. In spite of the limitations, progress has been made in applying concepts from learning theory to the study of developmental processes.

If you missed any of the above, you should restudy Frame 1^8 before turning to Frame 2^8 on page 49.

Frame 2^8 continued

Label each of the following statements as true or false.

______1. In classical conditioning, an association is established between two stimuli so that both stimuli elicit essentially the same response.

______2. When the conditional stimulus elicits a response, the response is called a conditioned response (CR).

______3. Some theorists argue that all learning is basically classical conditioning.

______4. Some responses can be classically conditioned within days and even hours after birth.

______5. Many factors influence conditioning in the very young child.

Now turn to Answer Frame 2^8 on page 52 to check your answers.

Frame 3^8

Operant or instrumental conditioning. Recall that in operant conditioning, something that a child does "spontaneously" (with no readily identifiable eliciting stimulus) results in reinforcement, which in turn may increase or decrease the likelihood of the response occurring again. The 11-month-old whose older brothers and sisters howl with laughter when she plops her half-full cereal bowl upside down on her head, persists in doing so long after the "joke" has worn out. The 10-year-old whose friends laugh when he falls while trying to ride a bike may feel humiliated and refuse to try again for some time.

Operant conditioning involves alteration of the frequency of occurrence of some response which the child already makes. Although the very young infant makes a number of responses, finding responses sufficiently stable to permit operant conditioning is something of a problem. Some investigators claim they have demonstrated operant conditioning of sucking responses as early as the first month of life, although there is some question whether the change in response was in fact due to conditioning or to some other process such as adaptation. However, operant conditioning of responses such as head turning, smiling, and vocalization has been clearly demonstrated by the second and third months of life.

Obviously, as a child grows up, the range of his response capabilities increases dramatically. With this increase in response availability, the potential for operant conditioning to take place also increases dramatically. Much of children's ongoing daily behavior is undoubtedly under operant control, that is, dependent upon the reinforcements which are contingent on what he does.

Operant learning principles have had widespread application in theoretical analyses of children's behavior. They have also found an important and very useful application in the area of *behavior modification.* The basic assumption of behavior modification is that any consistently occurring behavior must be reinforced in some way. If this is the case, one can alter undesirable behaviors by identifying the effective reinforcer and removing it (a process called extinction), or one can increase desired behaviors by consistently reinforcing them when they occur. If the desired behavior does not occur at all (under which circumstance it cannot be reinforced), *shaping* procedures may be used. Initially, any behavior which is similar to the desired response is reinforced even though the similarity is remote. Once these behaviors are occuring regularly, the reinforcement contigencies are changed so that only those most similar to the final behavior are reinforced. This process continues through a series of successive approximations until the desired behavior is present and occurring regularly. Behavior modification techniques have been successfully applied to tantrum behavior; sleeping problems; establishment of peer interactions; classroom learning, with both normal and mentally retarded children; language development in psychotic (severely emotionally disturbed) children; and many other areas.

As the instances cited indicate, operant learning principles have proved to be very effective in understanding and in influencing children's behavior. The principles themselves are straightforward. Their application, however, can become very complex and should never be undertaken without thorough study and understanding of the situation.

One additional point concerning reinforcement itself should be stressed; that is, that there is no good way of specifying in advance what constitutes an effective reinforcer. Recall the examples given at the beginning of this frame. Laughter was the reinforcer in both instances, but for the 11-month-old it was a positive reinforcer while for the 10-year-old it was a negative reinforcer. Further, different 10-year-olds in such situations would react differently to laughter at their first fumbling attempts to learn. To be sure, some reinforcers are more likely to be effective than others. Most children will react to powerful reinforcers such as food when hungry or social approval and attention from adults or peers. However, there is no guarantee that even reinforcers such as these will be effective for all children, or that they are the most effective reinforcers for any given child.

Identifying effective reinforcers is a complex process which can misfire badly in the hands of those who have not had a good deal of training and experience. This is one reason the apparent simplicity of behavior modification techniques is deceptive.

Is each of the following true or false?

_______1. In operant conditioning, something that a child does spontaneously does not result in reinforcement.

_______2. Operant conditioning involves alteration of the frequency of occurrence of some response which the child already makes.

_______3. If operant learning principles are correct, one can alter undesirable behavior (behavior modification) by identifying the effective reinforcer and removing it (extinction).

_______4. Operant conditioning techniques are rather straightforward and may be applied by anyone with little danger to the child being conditioned.

Now turn to Answer Frame 3^8 on page 52 to check your answers.

Answer frame 2^8

1. True. One of the stimuli originally elicits the response, the unconditioned stimulus (UCS). The conditional stimulus (CS) acquires its ability to create a response through its paired association with the USC.
2. True. The crying of a child in a doctor's office that is triggered by the doctor's white coat or other such conditional stimuli is called a conditioned response.
3. True. Certain responses can be classically conditioned throughout the life-span (e.g., fear of driving long after an accident). At the same time, however, there is some evidence that at about age six children begin to show resistance to classical conditioning.
4. True. Evidently the infant begins to learn as soon as he is born, within the limits of his capabilities.
5. True. Age is one factor. The older the child (until age six), the more rapidly the conditioned response will be elicited. The nature of the UCS and the CS also influences conditioning. One important but insufficiently studied factor is the baby's level of arousal.

If you missed any of the above, you should reread Frame 2^8 before turning to Frame 3^8 on page 50.

Answer frame 3^8

1. False. In operant conditioning, something that a child does spontaneously (with no readily identifiable eliciting stimulus) results in reinforcement, which in turn may increase or decrease the likelihood of the response occurring again.
2. True. Operant conditioning of responses such as head turning, smiling, and vocalization has been clearly demonstrated by the second and third months of life.
3. True. Behavior modification techniques have been successfully applied to such things as tantrum behavior, sleeping problems, and classroom learning.
4. False. Identifying effective reinforcers is a complex process which can misfire badly in the hands of beginners. Inexperienced practitioners may cause behavior modifications not expected or desired.

If you missed any of the above, you should review Frame 3^8 before beginning Frame 4^8 below.

Frame 4^8

Motivation. Motivation is a general term which refers to the needs, drives, or goals which lead an individual to act, or which may lead to selection of one course of action rather than another in a given situation. While most psychologists would agree that motivational concepts in some form are important for understanding behavior, they do not agree on the nature of motivation or the processes whereby it operates.

Motivation is central in dynamic theories of personality development; representatives of these theories were discussed in Chapter 2. The following section will summarize some of the prevalent motivational concepts which have come from American experimental psychology, particularly from theories of learning, and which have been applied to developmental psychology.

Drive. Individuals get hungry, thirsty, tired. These states, and others, result from innate psysiological processes. States such as these are called *primary drives.* An individual in whom one of these states is strong will usually act in some way to reduce its strength; he will seek food, liquid, or a place to rest. He will also learn responses which will result in satisfaction (reduction) of the drive. However, individuals also show many other motives such as desiring companionship, desiring approval from others, or wishing to excel at some activity. Motives such as these have no clear or direct relation to physiological processes. They are usually assumed to be learned, through the principles of learning. Such learned motives are called *secondary drives.*

The concept of reinforcement was originally linked with the concept of drive. *Primary reinforcers,* such as food, water, or rest, satisfy primary drives. *Secondary reinforcers,* such as company, approval, or achieving excellence, satisfy secondary drives. However, increasing numbers of psychologists have become reluctant to accept drive theory, while some research evidence concerning reinforcement and its effects have been difficult to fit into the context of drive theory. Consequently, psychologists have moved toward the more general definition of reinforcement which is used throughout this book.

Three major *functions of drive* have been described. First, drives *energize* behavior; they spur an individual to take some kind of action. The stronger the drive, the more likely the individual is to do something. Second, they *direct* behavior: a hungry person looks for food, not a bed. A person who wishes to excel will work toward that end even though some of his efforts may bring disapproval from others. A third function of drive is *selective;* over time, as an individual learns different courses of action, those which are most effective or efficient in satisfying the drive will come to be preferred, while less effective means are dropped.

True or false?

________1. Most psychologists agree on the nature of motivation and processes whereby it operates.

________2. Concepts from the study of motivation, such as primary and secondary drives, have been applied to developmental psychology.

________3. Increasing numbers of psychologists are starting to accept drive theory and its relationship with reinforcement.

________4. Three major functions of drives may be described: *(a)* drives energize behavior, *(b)* drives direct behavior, and *(c)* drives lead to selectivity.

Now turn to Answer Frame 4^8 on page 54 to check your answers.

Frame 5^8

Levels of arousal. Arousal is essentially readiness to act. It is a more general concept than drive in that it assumes that this readiness to act is a common component of drives (note its similarity to the energizing function of drive), and further that an individual's arousal level at any moment may be a result of inputs from a number of different sources. The relationship between level of arousal and performance is usually assumed to take the form of an *inverted U function.* At low levels of arousal, performance is poor. As arousal increases, performance improves until an *optimal level of arousal is reached.* Beyond the optimal level, however, further increases in arousal are associated with deterioration of performance. For example, a mild or moderate degree of anxiety (assumed to represent arousal) may be associated with high levels of performance on a test or on a problem-solving task, but a high level of anxiety may interfere and keep a child from performing well. Specifying optimal levels of arousal for given individuals or for given tasks or circumstances is difficult, and some arousal level research has been criticized for assuming the inverted U curve it claims to demonstrate. A decrement in performance is not in and of itself sufficient evidence that the optimal arousal level has been exceeded. One must show how performance varies over the full range of arousal levels.

Another aspect of the concept of an optimal level of arousal is the assumption that both very low and very high levels of arousal are unpleasant and that individuals will be motivated to avoid either. In the case of high levels of arousal, individuals attempt to reduce the stimulation leading to these high arousal levels; and in the case of low levels of a arousal, individuals attempt to increase stimulation so that arousal is closer to the optimal level. No one enjoys being all shook up; neither does anyone enjoy being bored.

Exploratory behavior. Individuals explore their environments. Even tiny babies look around and are otherwise active within the limits of their capabilities when they are rested, fed, and dry. Such behaviors seem most likely to occur in the absence of

Answer frame 4^8

1. False. Motivation is a general term which refers to the needs, drives, or goals which lead an individual to act, or which may lead to selection of one course of action rather than another in a given situation. Psychologists do not agree on the nature of motivation nor on the processes whereby it operates.
2. True. The concept of reinforcement was originally linked with the concept of drive. Primary drives result from innate psychological processes. Learned motives are called secondary drives. All of these concepts have been applied to developmental psychology.
3. False. Increasing numbers of psychologists have become reluctant to accept drive theory, and some research evidence concerning reinforcement and its effects have been difficult to fit into the context of drive theory. However, the insights from drive theory are helpful in studying other concepts.
4. True. Drives spur an individual to action, they direct the action, and over time an individual learns actions which are most effective in satisfying his drives.

If you missed any of the above, you should restudy Frame 4^8 before turning to Frame 5^8 on page 53.

Frame 5^8 continued

indentifiable drive states; the individual does not need to be motivated to do them. Rather, they appear to be engaged in for their own sake, that is, they are intrinsicially motivated. Neither traditional learning theory nor traditional psychoanalytic theory can handle these notions readily. Such observations are among the factors generating reluctance of experimental psychologists to accept traditional drive theory and among the factors leading psychoanalytic theorists to turn toward greater emphasis on ego activities. Terms such as curiosity drive, manipulative drive, exploratory drive, motivation to mastery, competence motivation, and effectance motivation refer to these "spontaneous" exploratory and manipulative activities. Whether or not such activities constitute a drive as defined in a previous section is theoretically unresolved—and perhaps less important than the point that such activities do in fact occur. Much of what children do appears to fall into this category. Piaget's idea of the child as actively engaging in and repeating activities because they are intrinsically interesting is very similar to the ideas described here. The individual engaging in such activities may be seeking stimulation (avoiding a low arousal level?). Whether or not this is the case, such activities certainly appear to be functional since through them the individual gains information about his environment and experience in dealing with it.

Cognitive dissonance. A person may hold some belief but act in some way that violates that belief, or he may encounter some new information that contradicts something that he thought he knew. When such a situation occurs—when the individual recognizes the discrepancy between his belief and his action, or between previous knowledge and new information—the resulting state of tension is called cognitive dissonance. Cognitive dissonance is assumed to be unpleasant, and the person experiencing it is assumed to be motivated to reduce the dissonance in some way. The person might change his action, change his belief, or rationalize his action in some way; or he may incorporate the new information in some way. Most research on cognitive dissonance has been done with adults, but the principles of dissonance theory have been demonstrated in research with children. Cognitive dissonance theory is very similar to Piaget's concept of equilibration (see Chapter 3), which he considers a basic process in cognitive growth.

True or false?

________1. The relationship between level of arousal and performance is usually assumed to take the form of an inverted U function.

________2. Most people are most comfortable with minimal arousal.

________3. Neither traditional learning theory nor traditional psychoanalytic theory offer ready explanations for exploratory behavior which appears to be intrinsically motivated.

________4. When an individual recognizes a discrepancy between his belief and his action or between previous knowledge and new information, the resulting state of tension is called cognitive dissonance.

Now turn to Answer Frame 5^8 on page 56 to check your answers.

chapter 9

CONCEPT FORMATION AND PROBLEM SOLVING

Frame 1^9

As often as not, concept formation and problem solving have been used as interchangeable terms for types of complex learning. Where they have not been used interchangeably, there has been little agreement on how each term should be defined. This chapter will summarize some of the major concepts and issues which have been of interest to persons studying concept formation and problem solving, however they may have defined the terms. Since most work on these topics in the United States has grown out of learning theory, the first sections will define some terms which link the simple learning described in previous chapters with more complex learning. Later sections will summarize some of the changes found in children's problem-solving and concept formation.

Generalization and discrimination. Suppose a child has learned to respond to a large, round container in his mother's kitchen by pointing and saying, "cookie," following which he often gets a cookie. On seeing a large, round, but not identical, container in his grandmother's kitchen, he may again point and say "cookie." This is an example of *generalization:* a response learned to one set of cues occurs to a different but similar set of cues. The more similar the cues, the more likely it is that generalization will occur. Often, *overgeneralization* occurs. The child may say "cookie" while pointing to flour canisters, tobacco canisters, or other large round containers. The child must learn to distinguish between cues for which the response is appropriate and cues for which it is not, and the response to inappropriate cues must be extinguished. This process is called *discrimination.*

Mediation. Mediation occurs when there is an intervening response to a stimulus which changes the response the person makes. For instance, a child may see a container in someone's front room that looks very much like his mother's cookie jar, decide that it is not a cookie jar (the intervening mediating

Answer frame 5^8

1. True. At low levels of arousal, performance is poor. As arousal increases, performance improves until an optimal level of arousal is reached. Beyond the optimal level, further increases in arousal are associated with deterioration of performance.
2. False. No one enjoys being bored; nor does one enjoy being all shook up. Most people are most comfortable in the middle range of arousal, and people with minimal arousal will normally seek stimulation.
3. True. Terms such as curiosity drive, manipulative drive, and competence motivation refer to these "spontaneous" exploratory activities.
4. True. Cognitive dissonance is assumed to be unpleasant, and the person experiencing it is assumed to be motivated to reduce the dissonance by changing his belief, changing his action, or by rationalizing his behavior or beliefs in some way.

If you missed any of the above, you should restudy Frame 5^8 before turning to Chapter 9 on page 55.

Frame 1^9 continued

response), and so not ask for a cookie. Here the similarity between the two containers might have led one to expect the child to ask for a cookie, but because of the intervening mediating response, he didn't. The mediating response in this example is verbal. Other types of responses, such as attentional, perceptual, or motor responses, may be mediating responses, but verbal mediators have been by far most extensively studied in the United States. Mediating responses are often (though not necessarily) covert; that is, they occur "inside the child's head" and so cannot be observed directly.

Suppose grandmother's cookie jar is a square wooden container and mother's is a round, metal container painted green. Once the child learns that they are both called "cookie jars," he is much more likely to respond the same way to both despite their physical dissimilarity. This is a form of *mediated generalization* called *acquired equivalence of cues.* Two stimuli having different physical attributes come to be treated alike if the child learns the same name for both. In this instance, the common response is the label, "cookie jar." Acquired equivalence of cues may contribute to prejudice reactions; a prejudiced person acts the same way toward all individuals to whom he applies a given label or name, regardless of the differences among them as individuals. A related phenomenon is *acquired distinctiveness of cues.* Two stimuli which are very similar are more likely to be responded to differently if a child has learned different names for them. If our example child stops asking for cookies from the round, green container in grandmother's kitchen once he learns that it is a flour canister rather than a cookie jar, he is demonstrating acquired distinctiveness of cues.

Indicate whether each of the following statements is true or false by writing "T" or "F" in the space provided.

________1. When a response learned to one set of cues is elicited by a different but similar set of cues, the process is called *generalization.*

________2. The process of learning to distinguish between cues for which a response is or is not appropriate, and extinguishing the response to cues for which it is inappropriate, is called discrimination.

________3. Mediation occurs only when there is a verbal intervening response to a stimulus which changes the response the person makes.

________4. Acquired equivalence of cues may contribute to prejudice reactions.

Now turn to Answer Frame 1^9 on page 58 to check your responses.

Frame 2^9

Transposition. You can recognize a song no matter what musical key it is played in because the melody depends upon the relationship between the notes rather than upon their absolute pitch. Transposition is the ability to respond to the *relationship* between cues rather than to their absolute values. Size transposition has been extensively studied in children. A child might be shown a large and a small square and taught to respond to the large one. Once he has learned to do this, he is shown the original large square and a new square which is even larger. If he was responding to absolute size, he should continue to pick the same one: it is now the smaller of the two. If he is transposing, or responding to the relationship "larger than," he should pick the new one. The older the child, the more likely he is to transpose; this is especially true if the new, larger square is a great deal larger than the original one (far transposition) rather than fairly close in size to the original one (near transposition). One interpretation of this effect is that older children's responses are mediated; they are more likely to be doing something like saying to themselves, "This is the one that's bigger." Many other factors may influence transposition performance, such as the number of stimuli and the way in which they are presented; and other interpretations of the transposition effect have been made. Children's performance on problems as apparently straight-forward as this one turns out to be surprisingly complex.

Discrimination learning. A discrimination learning task consists of presenting two or more stimuli to a child; he must learn which one to respond to, and extinguish responses to the others. These tasks usually require *concept identification* rather than concept formation. The child must identify which one of several familiar concepts is correct rather than develop a new concept which he did not previously know.

Performance on discrimination learning tasks is influenced by a complex array of factors. To mention just a few, learning is better for objects than for geometrical forms; for three-dimensional forms than for two-dimensional forms (such as pictures); for preferred attributes of stimuli than for nonpreferred attributes; and for responses made close to the stimulus (for instance, pushing a panel with the cue picture on it) than responses made a distance away from the stimulus (pushing a panel some inches away from the cue card). Factors such as these are related to the stimuli and their presentation; they are diverse, but appear to have in common help to attend to the stimuli or to distinguish between them. The way in which children are reinforced for correct and incorrect responses also influences discrimination learning, but again the effects are complex.

One might expect that performance on discrimination learning tasks would improve regularly with age. However, several developmental studies have found improvement with age in younger groups of children but increasingly inefficient performance in older groups of children. Evidently the problems are too simple for older children; they are likely to try to develop complex hypotheses about the correct stimulus and this may interfere with their learning of simple, direct responses to the stimuli.

Label each of the following statements as true or false.

_______1. Transposition is the ability to respond to the *relationship* between cues rather than to their absolute values.

_______2. A discrimination learning task consists of presenting two or more stimuli to a child; he must learn which one to respond to and extinguish responses to the other.

_______3. Performance on discrimination learning tasks is better for simple two-dimensional forms such as pictures than for three-dimensional forms.

_______4. The older a child becomes, the better he is able to perform on discrimination tasks.

Now turn to Answer Frame 2^9 on page 58 to check your answers.

Answer frame 1^9

1. True. The more similar the cues, the more likely generalization will occur.
2. True. Discrimination is the opposite of generalization. Discrimination is the ability to distinguish between similar but different cues.
3. False. The mediating response may be verbal, attentional, perceptual, or motor; but most attention has been given verbal mediators.
4. True. A prejudiced person acts the same way toward all individuals to whom he applies a given label or name.

If you missed any of the above, you should reread Frame 2^9 before beginning Frame 3^9 below. 57.

Answer frame 2^9

1. True. You can recognize a song no matter what musical key it is played in because the melody depends on the relationship between the notes rather than upon their absolute pitch. Your ability to pick out the song is called transposition.
2. True. The child must identify which one of several familiar concepts is correct rather than developing a new concept which he did not previously know.
3. False. Performance is better for three-dimensional forms than for two-dimensional forms; for preferred attributes of stimuli than for nonpreferred attributes; and for objects rather than for geometrical forms.
4. False. Developmental studies have found improvement with age in younger groups of children but increasingly inefficient performance in older groups.

If you missed any of the above, you should reread Frame 2^9 before beginning Frame 3^9 below.

Frame 3^9

Reversal learning. Imagine two sets of cues. One consists of a red circle and a blue square. The other consists of a blue circle and a red square. These are presented to a child as a discrimination learning task and he must learn to choose the square, regardless of whether it is red or blue. Of the two stimulus dimensions, form and color, form has been designated as the *relevant* dimension; it contains the right and wrong cues. Color is an *irrelevant* dimension; responding to red or blue will not help the child solve the problem (though he would be reinforced sometimes, since the square is sometimes red and sometimes blue). Once the child has learned to pick the square consistently, the problem is shifted without warning; the square, which has been correct, is now incorrect. A *reversal shift* requires learning to respond to circle, which was always wrong before. A shift to red or to blue is a *nonreversal* or *extradimensional shift*, since these cues are from the other, irrelevant dimension. Very young children (and lower animals) find it easier to learn extradimensional shifts. Human adults learn reversal shifts more easily. The older the child, the more easily he learns a reversal shift.

One interpretation of these effects is that the reversal shift requires mediation. If a child responds just to specific cues, he should be at least as likely to shift to red and blue as to circle—in fact, more likely, since red and blue have been reinforced whenever they occurred with square. But suppose he responds not just to the specific cue but also to the dimension; then when the shift occurs, he continues to respond to the dimension. This response to the dimension could mediate reversal learning. It is as though the child says to himself, "Shape is right, but now square is wrong, so it must be circle." Mediators are not necessarily verbal, as mentioned before, but it seems likely that verbal processes do affect reversal learning. Even very small children learn a reversal as easily as do adults if they name the relevant cues out loud while learning the first task.

Naming is not the only procedure which influences reversal learning for children. So also does practice in attending to the dimension; attention to the relevant dimension makes reversal easier, while practice with the irrelevant dimension makes the extradimensional shift easier. This and other evidence have led some theorists to suggest that attentional responses are critical for reversal learning. This could be why naming works too, since one effect of naming is to direct attention to what is named.

Label each of the following statements as true or false.

________1. In reversal learning, an individual must learn to shift his response from what had been a relevant cue to what had been an irrelevant cue.

________2. Very small children may learn a reversal task as easily as adults if they name the relevant cues out loud.

________3. Extradimensional shifts are harder to learn for children.

________4. Thus far, naming has been the only procedure which improves reversal learning for children.

Now turn to Answer Frame 3^9 on page 60 to check your answers.

Frame 4^9

Mediation deficiency or production deficiency? Evidence from reversal learning and other tasks do show fairly consistently that mediation effects increase with age. However, even children who do not mediate know the relevant words. If they know the words, why isn't their performance mediated? The *mediation deficiency hypothesis* suggests that the mediators are present but that somehow the child does not use them in the same way as adults do. However, the *production deficiency hypothesis* suggests an alternative viewpoint: although the children *can* produce the mediators, they do not do so spontaneously. If they can be made to produce them, as for instance, by asking them to name cues out loud, they can use them as effectively as can children who produce them spontaneously—without special prompting. The evidence that young children are unlikely to produce either verbal or nonverbal mediators spontaneously is growing. If nonproducers can be induced to produce the mediating response, their performance improves to the level shown by children who spontaneously mediate. This hypothesis indicates that there is a long lag between the time children begin to speak and the time when they begin to use verbal responses as mediators. As they acquire more experience with age in using mediators in problem-solving tasks, they become more and more likely to do so without special assistance. At what age mediators begin to be used spontaneously probably varies from child to child and from task to task, although for many tasks spontaneous production begins to occur regularly during the elementary school years. The mediation deficiency and production deficiency hypotheses are not necessarily mutually exclusive; it is very probable that both mediation and production deficiencies occur.

Is language learning necessary for concept formation and problem solving? From the stress upon verbal mediation in the preceding section, it would be easy to conclude that an individual could not learn complex problems and concepts without language. However, remember that other types of responses can serve as mediators. Can they do so as effectively as verbal responses? Evidence most relevant for this question comes from studies of deaf children. If one poses problems which *require* verbal skills, it would be ridiculous to expect deaf children to be able to solve them. However, if one poses the same types of problems in such a way that they can be solved with or without language, deaf children can solve them and often do as well as hearing children. For children who have language, there is no question that their language is a very useful tool in concept formation and problem solving. However, language is not a necessary condition for these abilities to develop.

Answer frame 3^9

1. False. A reversal shift requires learning to respond to a cue which was relevant but always wrong before.
2. True. One interpretation of reversal behavior is that reversal shift requires mediation. Mediators are not necessarily verbal, but verbal processes do affect reversal learning so that very young children may learn a reversal as easily as an adult.
3. False. An extradimensional shift (e.g., from square to red versus from square to circle) is easier for children to learn.
4. False. Attention to the relevant dimension also makes reversal easier, while practice with the irrelevant dimension makes extradimensional shift easier.

If you missed any of the above, you should reread Frame 3^9 before turning to Frame 4^9 on page 59.

Frame 4^9 continued

True or false?

_____1. The production deficiency hypothesis indicates that there is a long lag between the time children begin to speak and the time when they begin to use verbal responses as mediators.

_____2. If nonproducers can be induced to mediate, their response improves to the level shown by children who spontaneously mediate.

_____3. Acceptance of the production deficiency hypothesis precludes the acceptance of the mediation deficiency hypothesis.

_____4. Language is a necessary condition for concept formation and problem solving.

Now turn to Answer Frame 4^9 on page 62 to check your answers.

Frame 5^9

Learning set. Suppose that instead of giving a child just one discrimination problem, he is required to learn a long series of such problems. On the first, he must learn to choose a red square but not a green square; on the second, a triangle instead of a circle; on the third, a large square instead of a small square; and so on. On the first few problems he might need a lot of trials on each problem before he makes the correct choice consistently. The more problems he does, the fewer trials he needs for each new problem; finally, he solves each new problem immediately. At this point the child has established a *learning set;* he has "learned how to learn" problems of this sort. A learning set can be established for any principle by requiring the child to solve a succession of different problems all of which are based upon that principle. Learning sets were first demonstrated in monkeys. Subsequent studies with children showed that the older the child, the more rapidly a learning set could be established. Of particular importance is the point that once established, learning sets are retained over long periods of time. A child who encounters a new problem to which a previously established learning set applies can immediately use that learning set rather than having to go through a trial-and-error learning process requiring many trials. It may be that "insight" in problem solving occurs when an individual has a previously established learning set and recognizes that it applies to the problem at hand. In this way, learning sets may provide an important link between trial-and-error learning, on the one hand, and thinking and problem solving, on the other hand. In this context, it is interesting that when learning set procedures have been used in training conservation, they have been effective where most other procedures have not.

Is each of the following true or false?

_______1. The more problems with discrimination tasks a child does, the fewer trials he needs for each problem.

_______2. Learning sets can only be established for problems involving discrimination.

_______3. A child who encounters a *new* problem to which a previously established learning principle applies cannot immediately use that principle but must go through a trial-and-error process requiring many trials.

_______4. It may be that "insight" in problem solving occurs when an individual has a previously established learning set and recognizes that it applies to a new problem.

Now turn to Answer Frame 5^9 on page 62 to check your answers.

Frame 6^9

Changes in problem-solving strategies with age. When faced with a problem-solving task, the cues of the problem contain the information to which the child must respond in order to solve the problem correctly. However, young children are likely to start off in such tasks using prepotent response strategies which are irrelevant to the problem, and which consequently interfere with their performance. For instance, on two-choice discrimination problems like those described above, three-year-olds are likely to pick one position (right or left) and perseverate, or continue to choose that same position even though it is often wrong. Four-year-olds are more likely to alternate from left to right, again showing insensitivity to the problem cues to which they must respond to solve the problem. Even in middle childhood, children show relatively rigid response patterns and insensitivity to the information provided by reinforcement if the task is somewhat more complex. One study demonstrating this effect compared groups of children from age three to late adolescence on a *probability learning* task. The difference between a probability learning task and the tasks discussed previously is that the correct response in a probability learning task is reinforced only part of the time, rather than all of the time. In this probability learning task, there were three alternatives; two were never reinforced, while the third was reinforced part of the time. To maximize, or to be right as often as possible, the best solution is to make only the response which "pays off" even though it only pays off part of the time. The youngest and oldest groups were both maximizing by the end of the long series of learning trials. For the youngest groups, this appeared to reflect their prepotent position responses rather than sensitivity to the task itself; whereas the oldest groups appeared to have "figured out" that only one button ever paid off, after many trials. The middle groups were not maximizing. Rather, they tended to show stereotyped response patterns, frequently responding right-middle-left, left-middle-right, regardless of the fact that only one of these responses was ever reinforced. Evidently, the ability to respond directly and flexibly to the information in new problems develops slowly and only after much practice.

Classification skills. If a child has a well-developed system of concepts, he should be able to sort groups of objects into those which are exemplars of a concept and those which are not. For instance, suppose a child is given a set of wooden blocks which differ in size, shape, and color, and asked to sort them into groups that go together. Young children (three or four) make "heaps"—they put blocks together without regard to the attributes of the blocks—or they make "graphic collection"—they use the blocks to make designs or pictures. Somewhat older children group the blocks into "complexes" or "nongraphic collections." They use the characteristics of the blocks in sorting, but they do not sort according to one attribute consistently. For instance, they may start with a red triangle, then proceed to a red square, a blue square, a blue circle. There is a connection between each pair, but the basis changes from pair to pair. The most advanced complexes might be called pseudoconcepts; here,

Answer frame 4^9

1. True. As they acquire more experience in using mediators, they become more and more likely to do so without special assistance.
2. True. Although nonproducers can produce the mediators, they do not do so spontaneously. When mediating is induced, these children do as well as those who mediate spontaneously.
3. False. The mediation deficiency and production deficiency hypotheses are not necessarily mutually exclusive; it is very probable that both deficiencies occur.
4. False. Other types of responses besides verbal can serve as mediators. Language is a very useful tool in concept formation and problem solving but not a necessary one.

If you missed any of the above, you should restudy Frame 4^9 before turning to Frame 5^9 on page 60.

Answer frame 5^9

1. True. Eventually the child solves new problems immediately. At this point, the child has established a learning set; he has "learned to learn" problems of this sort.
2. False. A learning set can be established for any principle by requiring the child to solve a succession of different problems all of which are based upon that principle.
3. False. Once established, learning sets are retained over long periods of time and can be applied immediately to new problems.
4. True. In this way, learning sets may provide an important link between trial-and-error learning, on the one hand, and thinking and problem solving, on the other hand.

If you missed any of the above, you should review Frame 5^9 before turning to Frame 6^9 on page 61.

Frame 6^9 continued

the child may put all the reds together and all the blues together so that he appears to be sorting conceptually. However, if the child is now asked to sort them another way, he is unable to do so. Not until well into middle childhood can the child readily resort according to another criterion than that which he used first, indicating that he has a well-developed and flexible system of concepts at his disposal.

Piaget's work. The development of a number of basic and important concepts, such as concepts of time, space, number, casuality, and others, has been described in detail by Piaget. Typically, rudimentary forms of such concepts can be seen in the child's activities during the sensorimotor period. During the preoperational period, the child's use of such concepts reveal characteristic errors which derive from the attributes of his thinking during this period, such as absence of reversibility and egocentricism. With concrete operations these errors are gradually overcome; it is not until late in the concrete operational period or until the child has achieved formal operations that these concepts are fully developed. Further elaboration on the development of these concepts is beyond the scope of this PLAID; the interested reader should consult one of the excellent reviews of Piaget's theory now available, or consult the works of Piaget himself, many of which are now available in translation.

Is each of the following true or false?

______1. To solve a new problem, young children are likely to use prepotent response strategies which are irrelevant to the solution.

______2. The ability to respond directly and flexibly to new problems develops slowly and only after much practice.

______3. If a child has a well-developed system of concepts, he should be able to sort groups of objects into those which are similar conceptually and those which are not.

______4. Piaget has described the development of many other basic concepts such as time, space, number, causality, and others.

Now turn to Answer Frame 6^9 on page 64 to check your answers.

chapter 10

INTELLIGENCE

Frame 1[10]

The introduction of intelligence tests into the United States (see Chapter 11) has been followed by extensive research on intelligence test scores, their determinants, and their relationships to other variables such as school achievement, creativity, or personality characteristics. The orientation of researchers working with intelligence test scores differs from that of Piaget (see Chapter 3) in two major ways. First, intelligence tests ask whether a person is right or wrong in solving problems of some type, regardless of how he arrived at his answer; they deal with the *products* of intellectual activity. Piaget is more interested in developmental changes in how the child goes about solving the problem, regardless of whether he is right or wrong; his concern is with the *process* of individual activity. Second, a primary aim of intelligence tests is to reveal individual differences in performance: compared with others his age, does an individual solve more problems, fewer problems, or about the same number? In contrast, Piaget is more interested in universal characteristics of intellectual development: what are the stages that all individuals pass through as intelligence develops, regardless of differences in the rate at which they pass through the stages? Both types of approach contribute to an understanding of intelligence, although in different ways.

Definition of intelligence. Theorists still disagree on the question of what is intelligence. Part of the difficulty in arriving at a definition undoubtedly lies in the fact that intelligence is a *construct,* that is, a label for processes which are assumed to exist but which have no concrete "reality": they can only be *inferred* from the kinds of things that people do. A problem solution, for example, can be observed directly; the intelligence it is assumed to measure cannot.

The following refer to some of the ways in which intelligence has been defined: *(a)* comprehension, invention, direction, and censorship; *(b)* ability to plan; *(c)* ability to solve problems; *(d)* ability to benefit from experience; *(e)* the ease with which new behaviors are learned; and *(f)* that which is measured by intelligence tests. This last definition may sound silly, but, in fact, it is seriously accepted by many psychologists.

The structure of intelligence. Does intelligence consist of some basic ability which manifests itself in all types of intellectual activity, or are there a number of different types of intelligence which are unrelated to each other?

The theory that there is a general intelligence common to all types of intellectual activity was advanced by Spearman, who called it the *g factor* of intelligence. Spearman assumed that there were also a number of specific or *s factors,* each unique to particular types of problems. A person's performance in different types of situations would thus be determined by both the *g* factor common to all the situations and by the *s* factor specific to each situation.

The alternative theory is that there are a variety of independent intelligences but no pervasive general intelligence. For example, Guilford's model of the structure of the intellect has been widely cited. He proposed that there are five basic different types of operations or cognitive processes: recognition, memory, divergent production, convergent production, and evaluation. Each of these five operations may be applied to any four different types of *contexts:* figures, symbols, semantics, and behaviors. Operations acting upon contexts may produce any one of six different types of *products:* units, classes, relations, systems, transformation, and implications. The number of

Answer frame 6^9

1. True. This tendency interferes with children's performance on new tasks. Young children tend to persevere in the old ways of doing things when new responses are called for in the present tasks.
2. True. The ability to adapt response patterns to fit new problems develops slowly. This is especially true for probability learning tasks where the correct response is reinforced only part of the time.
3. True. Not until well into middle childhood can a child readily change the criteria for grouping from that which he used first. That ability indicates that he has a well-developed and flexible system of concepts at his disposal.
4. True. It is not until late in the concrete operational stage that these concepts are fully developed in the child. Details about these concepts are left to more complete studies of Piaget and his work.

If you missed any of the above, you should review Frame 6^9 before beginning Chapter 10 on page 63.

Frame 1^{10} continued

different types of intelligence described by taking all possible combinations of operations, products, and contexts is in marked contrast to any assumption of only one general intelligence.

If there is some general intelligence, scores on different types of intellectual tasks should be correlated (related to each other). A person high on, say, verbal skills should also be high on numerical skills (although not necessarily equally high; remember those *s* factors). Perhaps the best summary of the evidence from studies looking for such correlations is that the structure of intelligence changes with development. A general factor is evident through middle childhood; but with preadolescence and adolescence, something more similar to independent types of intelligence becomes apparent. Further, the nature of the general factor of childhood appears to change with development. In infancy, the general factor has been described as attentiveness; in early childhood, attentiveness and persistence; and in middle childhood, verbal ability.

Indicate whether each of the following statements is true or false by writing "T" or "F" in the space provided.

________1. Intelligence tests are more concerned with the process of intellectual activity than with measuring whether a person can answer a problem correctly.

________2. Intelligence is a concrete reality that can be measured and understood through a few relatively simple measures.

________3. It is generally agreed among psychologists that intelligence is a general phenomenon common to all types of intellectual activity.

________4. Perhaps the best summary of the evidence from studies looking at the correlations between intelligence scores is that the structure of intelligence changes with development.

Now turn to Answer Frame 1^{10} on page 66 to check your responses.

Frame 2^{10}

Intelligence and creativity. Are creativity and intelligence highly related to one another? Is there something we can label "creativity" which is different from intelligence and hence not necessarily correlated with it? Creativity, like intelligence, is a construct. Moreover, the problems of defining creativity have been even greater than those of defining intelligence. There have also been problems in finding ways of measuring creativity. Many of the measures proposed for assessing creativity have turned out to be indistinguishable from measures of intelligence. One type of skill which does not appear to be just another manifestation of intelligence is *ideational fluency,* or the ability to produce many different—and perhaps unusual—responses to some type of question. For example, ideational fluency might be measured by asking children to think up uses for some common object, or to think of as many objects as they can which share some common attribute such as soundness or sharpness. Using tests such as these to measure creativity, researchers have identified groups of children who were high in both intelligence and creativity, low in both attributes, or high in one and low in the other. Some interesting differences between such groups have been found. For instance, academic achievement is highest for children who are high in intelligence but low in creativity. For another, personality differences between groups have been found. High-creative, high-IQ girls were self-confident in school and popular with peers; high-creative, low-IQ girls lacked self-confidence, were cautious and hesitant, and were least popular with peers. Other girls fell between these two groups.

One theory regarding the structure of intelligence parallels the creativity-intelligence distinction. R. B. Cattell suggests that there are two different types of intelligence. *Crystallized* intelligence consists of the repertoire of skills which an individual has learned for solving different types of problems, such as verbal skills or numerical skills. It represents an individual's mastery of the institutionalized skills and problem-solving techniques which are a part of his culture. It is heavily dependent upon environment, it develops through learning, and consequently it may continue to increase throughout a person's lifetime. *Fluid* intelligence, by contrast, is the type of intelligence the individual brings to bear on novel problems. It is assumed to be culture-free, to be largely innate, and to reach its peak around adolescence or young adulthood. Intelligence tests measure crystallized intelligence. Fluid intelligence appears to be much more like creativity and so is not measured by intelligence tests. In fact, one of the criticisms of intelligence tests is that they are so constructed that individuals actually may be penalized for creative answers. Because correct responses are based on *norms,* of necessity they represent responses that many people would agree are correct. Other, less typical answers may reflect as high a level of the skill being measured but they would be considered incorrect.

Indicate whether each of the following statements is true or false.

______1. Psychologists find it much easier to define creativity than to define intelligence.

______2. One type of skill which does not appear to be just another manifestation of intelligence is ideational fluency.

______3. Cattell suggests that one kind of intelligence represents the repertoire of skills that an individual has learned, and another kind of intelligence is brought to bear on novel problems.

______4. Intelligence tests are so structured that individuals may be penalized for giving creative answers.

Now turn to Answer Frame 2^{10} on page 66 to check your responses.

Frame 3^{10}

Growth of intelligence. Obviously, intelligence grows. Older children can solve much more difficult problems than can younger children. The rate of growth is most rapid in the early years of life. As a child approaches his teen years the rate of growth gradually tapers off. It used to be thought that intellectual abilities were at their peak in the late teens and early adulthood and that as middle age approached they began a decline which continued throughout the rest of life. However, more recent

Answer frame 1^{10}

1. False. Intelligence tests deal with the *product* of intellectual activity, not the *process*.
2. False. Theorists still disagree on the question of what is intelligence. Part of the problem is that intelligence is a construct and has no concrete "reality." It can only be *inferred* from the kinds of things that people do.
3. False. Some psychologists feel that there is a general intelligence. Others feel that there are a variety of independent intelligences but no pervasive general intelligence.
4. True. A general factor is evident through middle childhood; but during preadolescence and adolescence, something more similar to independent types of intelligence becomes apparent.

If you missed any of the above, you should restudy Frame 1^{10} before turning to Frame 2^{10} on page 64.

Answer frame 2^{10}

1. False. Creativity is difficult to define and is also difficult to measure.
2. True. Ideational fluency tests and similar such tests have identified children who were high in both intelligence and creativity, low in both attributes, or high in one and low in the other. Such tests indicate there is a difference between intelligence and creativity.
3. True. Crystallized intelligence, which can be measured by intelligence tests, represents an individual's mastery of institutionalized skills and problem-solving techniques. Fluid intelligence, which is brought to bear on novel problems, is much more like creativity and is not measured by intelligence tests.
4. True. Correct responses are based on norms that represent the responses that most people would agree are correct, and creative answers which may reflect as high a level of skill may be considered incorrect.

If you missed any of the above, you should restudy Frame 2^{10} before turning to Frame 3^{10} on page 65.

Frame 3^{10} continued

evidence shows that intelligence continues to increase in adulthood, although very slowly. This is especially true for verbal skills and it is especially true for individuals whose work requires continuing exercise of intellectual skills of the sort contained in intelligence tests. Performance skills, such as are found in tasks requiring spatial abilities or rapid responding, "peak" earlier and are more likely to decline with age than are verbal skills.

Stability of intelligence. The previous paragraph dealt with the absolute level of the child's intelligence. One can also look at the child's intelligence relative to children his own age. This approach is represented by the IQ score. It used to be assumed than an individual's IQ was a fixed attribute that changed little with age. Many people still make this assumption—if an individual's IQ is 90 at age 10, they believe that it will still be 90 at age 15, age 50, or age 100. While IQ scores do show consistency, the consistency is not nearly as marked as the assumption of a fixed IQ would lead one to expect. First, there is little relationship between IQ scores in infancy and IQ scores at later ages. Recently, vocalizations of infant girls (but not boys) have been reported to predict later IQ to some extent; otherwise, attempts to find infant correlates of later IQ have been unsuccessful. With the late preschool years, stability begins to increase, and through the grade school and high school years fairly high degrees of consistency are apparent, although the consistency is less the farther apart in time the IQ tests are given.

However, the above general statements represent average stabilities for groups of children. If one looks at the amount of change shown by individual children over the elementary school years, close to two thirds of the children show changes of more than 10 IQ points, and some show changes as great as 50 points or more. An IQ score at best gives approximate information about a child's current performance; it is a serious misuse of intelligence tests to categorize children on the basis of any single IQ test score. Environmental and personal factors such as emotional upset, family expectations, achievement motivation, or anxiety level may play a role. So also may changes in the nature of intelligence with age, and the related changes in the types of questions found in IQ tests at different age levels.

Determinants of intelligence. The nature-nurture issue has raged around the issue of the origins of intelligence and continues to do so, although by now many theorists would agree that the development of intelligence depends upon the *interaction* of heredity and environment rather than upon the operation of either heredity or environment alone. The interaction position implies that to fully understand development of intelligence, one must know not only the particulars of heredity and the particulars of environment but also the changes in effects of each through interaction with the other for given individuals. As yet, however, there is little information on the interaction process. One must be content with available information demonstrating hereditary influences and environmental influences separately, even though this is limited information.

Is each of the following true or false?

________1. Evidence clearly shows that intelligence peaks during early adulthood and declines throughout the rest of life.

________2. The IQ score of an individual changes little over his lifetime.

________3. The use of an IQ test at an early age in school is very helpful in categorizing children into various levels of potential achievement in later grades.

________4. A child's intelligence is inherited from his parents and changes little due to environmental circumstances.

Now turn to Answer Frame 3^{10} on page 68 to check your answers.

Frame 4^{10}

Evidence for hereditary influences. The main evidence for hereditary influences comes from comparisons of pairs of individuals who differ in the degree to which their genetic makeup is similar. Identical twins, coming from a common zygote, should be most similar. Siblings, fraternal twins, and parent-child pairs should be less similar genetically than identical twins, but more similar than unrelated persons. Correlations of IQ scores of identical twins are very high. Correlations of IQ scores of fraternal twins, nontwin siblings, and parent-child pairs are significant but not as high as for identical twins. IQ scores for pairs of unrelated individuals show no correlation. In addition, the IQ scores of adopted children correlate with those of their true parents but not with those of their adoptive parents, although the correlations are not as high as for children raised by their true parents. Evidence such as this demonstrates the interaction of heredity and environment in determining intelligence.

Evidence for environmental influences on intelligence. By comparing average IQ scores of groups whose environmental experiences differ in some way, or of groups which are alike except that some special experience has been given to one but not the other, a number of environmental factors which correlate with intelligence test scores have been identified. Only a few of these environmental factors are discussed here.

The quality of a child's *nutrition* can affect his IQ; so also can the quality of his mother's nutrition before the child is born. In fact, the effects of poor nutrition of mothers have been shown to persist across two generations. In extreme cases, such as the mental retardation associated with severe protein deficiency, the relationship between nutrition and IQ is clear. However, less dramatic inadequacies of diet may also interfere with intellectual development. In one study, children from an impoverished area were provided with vitamin supplements. After only a few months of the supplement, these children were scoring higher in IQ tests than they had before, and also scoring higher than were other children from the same area who did not have the dietary supplement. Unfortunately, not enough is known about the specific consequences of different types of inadequate nutrition.

Answer frame 3^{10}

1. False. Recent evidence shows that intelligence (especially verbal skills) continues to increase in adulthood, although very slowly.
2. False. It has been shown that IQ scores *do* change over time. If one looks at the amount of change shown by individual children over the elementary school years, for example, close to two thirds of the children show changes of more than 10 IQ points and some change 50 points or more.
3. False. An IQ score at best gives only approximate information about a child's *current* performance; it is a serious misuse of intelligence tests to categorize children on the basis of a single IQ test score. Various environmental, personal, and anxiety factors may play a role in any test score.
4. False. Many theorists would agree that the development of intelligence depends upon the interaction of heredity and environment rather than upon heredity or environment alone. There is still much more to be learned about the effects of heredity and environment, however.

If you missed any of the above, you should review Frame 3^{10} before turning to Frame 4^{10} on page 67.

Frame 4^{10} continued

Is each of the following true or false?

________1. There is strong evidence linking intelligence with heredity.

________2. There is little evidence for environmental influences on intelligence.

________3. What a mother eats before her child is born can affect its IQ.

________4. The effect of environmental influences such as nutrition on intelligence is clearly and directly evident.

Now turn to Answer Frame 4^{10} on page 70 to check your answers.

Frame 5^{10}

The *amount* and *patterning of stimulation* available from a child's family is also related to IQ. For reasons such as financial resources and attitudes toward child rearing, families differ widely in the variety of toys, books, or special experiences which they make available to their children. Yet, it appears to be less a matter of the absolute amount of stimulation provided than the patterning of that stimulation in relation to the child which is important for intellectual development. The stimulation must in some way be *contingent* on the child himself and on his actions. For instance, infants of mothers who responded to cues from the infant in caring for him showed evidence of more advanced mental development than did infants of mothers who provided as much care, but when the mother thought it should be given rather than when the baby appeared to signal for it. A particularly important instance of such *contingent stimulation* appears to be interaction between parent and child in the form of conversations, common projects, and the like.

Children with high *achievement motivation,* or desire to excel, are more likely to show gain in IQ than are children with low achievement motivation; this is especially true for boys. Achievement motivation, in turn, is related to family relationships. Boys with high achievement motivation are likely to have a close, warm relationship with a mother who is also demanding and expects competence from him, while his father is affectionate but allows the boy autonomy. For girls, achievement motivation is highest when the mother is less affectionate and encourages independence in her daughter.

Social class and intelligence. The higher the socioeconomic class of a child's family background, the higher the child's intelligence test score is likely to be. This effect is found consistently when children from different socioeconomic groups are compared. However, social class is a global concept which subsumes not only differences in economic resources and education but in attitudes, values, and living styles. The experiences of groups of children from different social classes vary in a number of interrelated ways. All of the environmental differences mentioned above vary with social class; the higher the family status, the more likely it is that nutrition will be adequate, that stimulation for intellectual development will be high, and so forth. There are those that would argue that the differences in IQ scores with social class are hereditary. There may be some truth to such an argument, but it is at least as likely that the IQ differences between social classes reflect these correlated differences in experience.

True or false?

________1. The amount and the type of interaction between a child and his family may affect the child's IQ.

________2. Children with high achievement motivation, or desire to excel, are more likely to show gain in IQ than are children with low achievement motivation.

________3. Achievement motivation is best stimulated among children through *constant supervision* and help from their parents.

________4. It is obvious that higher socioeconomic classes have children with higher IQ scores because of heredity.

Now turn to Answer Frame 5^{10} on page 70 to check your answers.

Answer frame 4^{10}

1. True. Correlations of IQ tests of identical twins are very high. Correlations of IQ scores of fraternal twins, nontwin siblings, and parent-child pairs are significant, but not as high for identical twins. IQ scores of unrelated individuals show no correlation.
2. False. By comparing average IQ scores of groups whose environmental experiences differ in some way, or of groups which are alike except that some special experience has been given to one but not the other, a number of environmental factors which correlate with intelligence test scores have been identified.
3. True. The quality of child's nutrition can affect its IQ—so also can the quality of the *mother's* nutrition before the child is born.
4. False. Evidence has shown relationships between various environmental circumstances and IQ scores, but the evidence is not clear and direct. More research is needed.

If you missed any of the above, you should review Frame 4^{10} before turning to Frame 5^{10} on page 68.

Answer frame 5^{10}

1. True. The absolute amount of stimulation a child receives from the family seems less important than the patterning of stimulation. Mental development in infants is enhanced if caretakers interact with the infant in response to his cues, rather than when the caretaker wishes to interact with him.
2. True. This is especially true for boys. Achievement motivation in turn is related to family relationships.
3. False. Boys with high achievement motivation are likely to have a close, warm relationship with a mother who is also demanding and expects competence from him, while his father is affectionate but allows the boy *autonomy*. For girls, achievement motivation is highest when the mother is less affectionate and encourages *independence* in her daughter.
4. False. Heredity may play an important role, but the relationship is not clear or obvious. Other factors such as nutritional, attitudinal, and educational differences may be equally or more responsible for differences in IQ scores.

If you missed any of the above, you should restudy Frame 5^{10} before turning to Chapter 11 on page 71.

chapter 11

ASSESSMENT

Frame 1[11]

We live in a test-conscious culture with literally hundreds of tests available for assessing nearly every conceivable human characteristic. Assessment is used in general to measure changes in an individual's behavior or performance over time, to discriminate one individual from another along some specified dimension, and to analyze the individual's current level of functioning.

There are basically two approaches to psychological assessment. In the *psychometric approach,* the individual's present level of performance is measured by administering scales that have been previously developed and standardized on appropriate normative samples. The individual's performance is then measured against standards or *norms* that have been established through previous administrations of the test. In the *projective approach,* the individual is presented with ambiguous stimuli and then asked to describe some aspect of these stimuli. That is, the individual is asked to project his own personality attributes into the test situation. The test administrator then arrives at a subjective evaluation of the individual's performance. Lack of adequate standardization is perhaps the most serious drawback of projective tests.

Another way of classifying tests is based on the function served by the test. Thus, tests that measure how much knowledge an individual has, either in general or on a specific topic, are called *achievement tests.* Tests that attempt to assess stable competencies of the individual are referred to as *aptitude tests;* those which provide the individual with information concerning his or her proclivity (or predisposition) for certain occupations are called *vocational interest tests;* those that attempt to assess stable personal attributes of the individual are called *personality tests.*

In order for an assessment device to be considered a good measuring instrument it must meet certain requirements. These requirements are typically referred to as reliability, validity, and standardization.

Reliability refers to the consistency with which a test measures what it purports to measure. We can assess the reliability of a testing instrument by administering *parallel forms* of the test, by using the *test-retest* method, or by using an internal consistency measure as given by the *split-half* technique. In the parallel forms method, two comparable forms of the test are administered. In the test-retest method, the individual is tested and then at some later point in time is retested. In the split-half method, the even-numbered items are combined and correlated with the score yielded from the combination of all odd-numbered items. In each case, the extent to which the two scores yield similar results determines the degree of consistency or reliability of the test. Although all of these methods provide reliability information, it is important to remember that they may yield different results. That is to say, a test may be highly consistent or reliable on a test-retest criterion but not on the odd-even criterion. Thus, a test given to children at age five years and at age seven years may show high reliability, but if it is a poor test it will provide little useful information about the individual.

Indicate whether each of the following statements is true or false by writing "T" or "F" in the space provided.

________1. In the psychometric approach to psychological assessment, the individual is presented with ambiguous stimuli and then asked to describe some aspect of these stimuli.

________2. Tests are classified as to the function served by the test.

________3. Reliability refers to the *consistency* with which a test measures what it purports to measure.

________4. A test with high reliability on any given measure will be equally reliable on other measures.

Now turn to Answer Frame 1^{11} on page 74 to check your responses.

Frame 2^{11}

When we attempt to determine the *validity* of a test, we are really asking the question of how well a test measures what it was designed to measure. Note that a test may be very reliable but not be valid; however, it cannot be valid without being reliable. There are several types of validity measures one may obtain for any testing instrument, each measure useful for different purposes. *Face validity* refers to the individual's impression of what the test is to measure, that is, what the test appears to be measuring from the perspective of the test taker. *Content validity* refers to the test items themselves; that is, do the test items reflect the overall purpose of the test? The items in the PLAID examinations would have poor content validity if they tested your knowledge of geophysics rather than your knowledge of developmental psychology. *Construct validity* is a measure of how well a test score measures a hypothetical construct such as "motivation" or "anxiety." This type of validity is obtained by correlating one test with another test that presumably measures the same construct. For example, if the PLAID examinations are high in construct validity, they should yield scores reflecting comparable performance on your classroom examinations. Both examinations presumably were designed to assess the construct "knowledge of developmental psychology." *Concurrent validity* is a measure of how well a test score correlates with an index of your actual behavior. For example, if a child psychologist constructed a test of anxiety, he may wish to administer his test to a group of children identified as high in anxiety and to a group identified as low in anxiety. The extent to which his test reflects these known differences is then a measure of the concurrent validity of his test. *Predictive validity* refers to the validity with which one may predict future behavior on the basis of the individual's present test performance. For example, to what extent is your test score in this PLAID predictive of your performance in your classroom examinations?

In some cases a test may be valid in one respect but invalid in another. A child psychologist may design a test that purports to measure creativity and through appropriate statistical analysis find that the items of the test appropriately reflect creativity. He may then administer his test of creativity and a test of intelligence to a group of first-grade children and find that his test of creativity yields no different information about the children than does the test of intelligence. Thus, while his test of creativity may have high content validity, it would have poor construct validity.

Indicate whether each of the following statements is true or false.

________1. When we attempt to determine the validity of a test, we are asking if the test really measures what it is supposed to measure.

________2. A test may be valid but still lack in reliability.

_______3. There is only one standard measure of validity for any testing instrument.

_______4. Concurrent validity is a measure of how well a test score correlates with actual behavior.

Now turn to Answer Frame 2^{11} on page 74 to check your responses.

Frame 3^{11}

Many assessment devices are designed to be administered in a one-to-one situation. Other tests may be administered to a group of individuals at the same time, for example, your class examinations, perhaps the intelligence test you took in high school, or your college entrance examination test. In general, *individually* administered tests are to be preferred when testing young children or infants, since great care must be taken to assure that the child clearly understands the task requirements of specific test items. Moreover, individual tests are often used in clinical evaluations where more information than just the test score may be used by the therapist. For example, one can assess subjectively the level of anxiety of a child as well as whether or not he passes a test item. Individual tests tend to provide greater reliability and validity than group tests, but individual tests are more expensive and time-consuming. It is for this reason that *group* tests tend to be used more with adults. Group tests have the additional advantage because they are easier to administer than individual tests. Group tests may be used as screening devices in personnel selection; as measures of interests, attitudes, or aptitudes; as predictive indices of the individual's ability to perform some future behavior; or as indicators of an individual's mastery of information.

Whatever the type of test administered it is now known that many variables may influence the individual's performance in the testing situation. Such influences would include the genetic makeup of the individual, the cultural opportunities given or denied the individual, the individual's language skills, his motivation to succeed at the moment, the state of his physical health, the conditions of the testing environment, and the subjective error that is always possible in individually administered testing situations.

Of these influences, language skills and cultural opportunities combine to provide one of the major biasing factors in assessment instruments. Tests tha attempt to control for these factors are generally referred to as *culture-free* or *culture-fair* tests. Rather than relying on language-based test items, culture-free tests emphasize geometric designs, simple pictures, and other abstract symbols in item composition. One important question concerning culture-free tests concerns the extent to which these tests provide as comprehensive assessment of mental abilities as the potentially more biased tests provide. Two of the commonly used culture-free tests are the Raven Progressive Matrices Test and the Leiter International Performance Scale.

Is each of the following true or false?

_______1. It is best to always test young children or infants in groups to assure consistency in testing.

_______2. Group tests tend to be more valid and reliable than individual tests.

_______3. Language skills and cultural opportunities combine to provide one of the major biasing factors in testing instruments.

_______4. Two of the commonly used culture-free tests are the Raven Progressive Matrices Test and the Leiter International Performance Scale.

Now turn to Answer Frame 3^{11} on page 74 to check your answers.

Answer frame 1^{11}

1. False. Projective tests present ambiguous stimuli. In the psychometric approach, the individual's performance is measured against standards of norms. These are the two basic approaches to psychological assessment.
2. True. Tests that measure knowledge are called achievement tests. Stable competencies are measured by aptitude tests. Tests to measure proclivity toward certain occupations are called vocational interest tests, and so forth.
3. True. The extent to which the scores on parallel forms of the test or on test-retest measures yield similar results determines the degree of *consistency* or reliability of the test.
4. False. A test may prove highly reliable on a test-retest criterion but not on the odd-even criterion. A test may be highly reliable and still provide little useful information about the individuals being tested.

If you missed any of the above, you should restudy Frame 1^{11} before turning to Frame 2^{11} on page 72.

Answer frame 2^{11}

1. True. In some cases a test may be valid in one respect but invalid in another. A test that validly measures creativity may yield no different information from a test of intelligence. Thus, while the test may have high content validity, it would have poor construct validity.
2. False. A test may be very reliable but not valid; however, it cannot be valid without being reliable.
3. False. There are several validity measures, each useful for a different purpose. Face validity is what the test appears to be measuring from the perspective of the taker. Content validity refers to the test items themselves. Construct validity is a measure of how well a test score measures a hypothetical construct. Other tests measure predictive validity and concurrent validity.
4. True. For example, a psychologist may administer a test of anxiety to a group of children identified as high in anxiety and a group identified as low in anxiety. The extent to which this test reflects these known differences is then a measure of the concurrent validity of the test.

If you missed any of the above, reread Frame 2^{11} before turning to Frame 3^{11} on page 73.

Answer frame 3^{11}

1. False. In general, individually administered tests are preferred when testing young children, since great care must be taken to assure that the child understands the task requirements.
2. False. Individual tests are more expensive and time-consuming, but they tend to provide greater reliability and validity.
3. True. Tests that attempt to control for these factors are generally referred to as culture-free or culture-fair tests.
4. True. Rather than rely on language-based test items, such tests emphasize geometrical designs, simple pictures, and other abstract symbols.

If you missed any of the above, you should review Frame 3^{11} before beginning Frame 4^{11} below.

Frame 4^{11}

Early assessment. Tests that are administered during the period of infancy are referred to as *neurological* or *developmental* examinations. Neurological examinations are designed to provide information about the normal (or abnormal) development of the nervous system. Along this line we should point out that neurological examinations are certainly not restricted to infants, they may be administered at any age level. For the infant, these tests make heavy use of the infant's reflexive behavior repertoire, since either the presence or absence of certain reflexes can provide the pediatrician useful information upon which to base his diagnosis, particularly when abnormality is suspected. In all likelihood, the first test the human being received is the Apgar examination, administered within minutes after birth. It consists of an evaluation of the newborn's skin color, pulse rate, respiratory effort, activity level, and reaction to stress. Although it is not technically a neurological examination, its emphasis on physiological activity makes it more a cousin to the neurological examination than to the developmental examination.

In contrast to the neurological examination, the developmental examination is designed to tap a broader range of the infant's behavioral abilities, including his fine and gross motor skills, language skills, personal and social behavior, and his adaptive behavior. Often conceptualized as early tests of intelligence, these examinations have not proven to correlate well with intelligence tests administered to older children or adults. Perhaps this is because good performance on an intelligence test is highly dependent upon language and cognitive abilities, whereas performance on a developmental examination is more dependent on perceptual-motor abilities. In general, infant tests are difficult to administer, score, evaluate, and standardize.

However, several recent studies have challenged the historical finding that infant developmental examinations provide no information relevant to intellectual ability measured later. Typically, these studies combine pediatrician assessments of the infant's normality with the scores yielded by developmental examinations. The combined scores have been found to correlate positively with tests administered as much as 10 years later. Of the many developmental examinations available for infant assessment, the Gesell Scales are the most widely used, while the Bayley Scales of Infant Development are the most carefully standardized and most reliable of the infant tests. A very recent movement in infant assessment has involved the construction of assessment scales based on Piaget's theory of cognitive development. The extent to which these tests will yield predictive information about later intellectual performance has yet to be determined.

Is each of the following true or false?

_______1. Tests that are administered during the period of infancy are referred to as neurological or developmental examinations.

_______2. Traditionally, developmental examinations have been found to correlate highly with intelligence tests administered to older children.

_______3. The combined scores yielded by developmental examinations and pediatrician assessments of an infant's normality have been found recently to correlate positively with tests administered as much as 10 years later.

_______4. The extent to which recently constructed developmental examinations will yield predictive information about later intellectual performance has yet to be determined.

Now turn to Answer Frame 4^{11} on page 76 to check your answers.

Frame 5^{11}

Assessment of intelligence. Early in the 20th century, the French Ministry of Public Instruction established a commission whose charge was to develop a means of identifying mentally subnormal children and to devise innovative instructional opportunities for these children. For the history of assessment the most profound accomplishment of the commission was the development of the first systematic test of intelligence. Originally published in 1905, the Binet-Simon test has undergone several revisions during which the concepts of *mental age* and *intelligence quotient* (IQ) were developed. The English language version of the test was published in 1916 by Terman. This version, known as the Stanford-Binet test and most recently revised in 1960, continues to be a widely used instrument in individual assessment of children.

The Wechsler Intelligence Scale for Children (WISC) and the Wechsler Adult Intelligence Scale (WAIS) are more widely used intelligence tests for elementary age children and adolescents respectively. The WPPSI (Wechsler Preschool and Primary

Answer frame 4^{11}

1. True. Neurological examinations are designed to provide information about the normal or abnormal development of the nervous system. These tests make heavy use of the infant's reflexive behavior repertoire.
2. False. Perhaps this is because good performance on an intelligence test is highly dependent upon language and cognitive abilities, whereas performance on a developmental examination is more dependent upon perceptual motor abilities.
3. True. Several recent studies have challenged the historical finding that infant developmental examinations provide no information relevant to intellectual ability measured later.
4. True. A very recent movement in infant assessment has involved the construction of assessment scales based on Piaget's theory of cognitive development. Presently, Gesell Scales are the most widely used, while the Bayley Scales of Infant Development are one of the most carefully standardized and most reliable.

If you missed any of the above, you should review Frame 4^{11} before turning to Frame 5^{11} on page 75.

Frame 5^{11} continued

School Intelligence Scale) is a recently developed extension of the WISC for younger children. Both the Stanford-Binet and the WISC are individually administered tests, thereby providing the examiner with a one-to-one interaction with the child. The WISC consists of two scales, verbal and performance, which together yield an overall IQ score. The verbal scale includes subscales testing general information, general comprehension, arithmetic, similarities, vocabulary, and digit span. The performance scale includes assessment of picture completion, picture arrangement, block designs, object assembly, and maze coding.

Education provides one arena for extensive use of assessment devices. Test performance can provide evidence of the child's underachievement, motivational difficulties, reading readiness, and arithmetical skills. Much criticism against testing has occurred in the context of their use in the school system; indeed many states have adopted legislation that essentially prohibits the use of certain kinds of tests in the schools, for example, personality tests. Although much of the criticism against such testing in the schools is justified, much of it is not. In fact, one might argue that the tests themselves cannot be justifiably criticized, rather the improper interpretations placed on test results by untrained or incompetent personnel should be the target of criticism. Such testing should be conducted and interpreted by a trained psychometrist and should represent only one component of an overall evaluation of the child's behavior. Improper use of test results can be as damaging to the child's educational and personal growth as can a complete lack of knowledge of the child's current and potential difficulties.

Personality assessment. In many instances children's intelligence test scores are low not because of any intellectual disabilities but because they have psychological problems that interfere with their ability to perform to their highest capacity. In these instances, the school counselor or the school psychologist may wish to obtain information about the personality attributes of the child. But, personality assessment is utilized in a much broader study of child development than that provided by the school. For example, the child psychologist or developmental psychologist may be interested in studying the effects of parental child-rearing patterns on personality development in children. Or, one may be interested in the development of sexual behavior and attitudes. One may wish to study the acquisition of values, attitudes, or prejudices. For each of these areas of concern, psychological assessment significantly contributes to the psychologist's understanding of the child.

Many personality tests are *paper-and-pencil* tests, utilizing rating scales and/or check lists. Other assessment techniques used to study personality include *sociometric tests, parental reports, anecdotal records,* and a wide variety of *observational methods. Projective tests* provide the child an opportunity to give free and unrestricted expression of his world view. Such tests include doll play, the Rorschach Ink Blot Test, Alexander Adult-Child Interaction Test, and the Draw-a-Person Test.

True or false?

________1. Originally published in 1905, the Binet-Simon test of intelligence has undergone several revisions during which the concepts of mental age and intelligence quotient were developed.

________2. Both the Stanford-Binet and the Wechsler Intelligence Scale for Children are administered to groups thus providing quick and easy comparisons.

________3. The use of intelligence and personality tests in schools is a dangerous practice and should be abolished.

________4. In many instances children perform poorly on intelligence tests not because of any intellectual disabilities but because they have psychological problems that interfere with their ability to perform.

Now turn to Answer Frame 5[11] on page 78 to check you answers.

chapter 12

LANGUAGE ACQUISITION

Frame 1[12]

Early vocalizations. The young child vocalizes long before he acquires his first "word." An infant *cries* from birth, and it might be argued that this first vocalization is a form of communication, signaling as it does that care is needed in some form. At about six to eight weeks of age, a second basic type of sound begins to be made. This is *cooing* and differs from crying in that the tongue is used in modifying the sounds made. Moreover, cooing occurs when the baby is contented rather than in response to distress as is the case with crying. Subsequently, *babbling* develops, reaching a peak frequency at about 10 months of age.

The range of sounds that the young infant can make is restricted by several factors, including the presence of fatty pads in his cheeks, the absence of teeth, and his typical prone posture which makes production of some sounds difficult if not impossible. With maturation and development these limiting factors decrease and the range of sounds made by the infant increases. The infant produces many sounds when he is babbling including those which are not part of his native language. Eventually, sounds which are not part of his native language drop out and may be very difficult to relearn later. Babbling typically takes the standard form of syllable repetition, such as ga-ga-ga or da-da-da or ma-ma. It is probably no accident that the first word children in many parts of the world speak is "mama" or something very similar to it.

The sounds made during the first two months of life appear to be relatively little influenced by the

Answer frame 5^{11}

1. True. The English version of the test was published in 1916 by Terman. This version, known as the Stanford-Binet test, was revised in 1960 and continues to be a widely used instrument.
2. False. The Stanford-Binet and the WISC are individually administered tests, thereby providing the examiner with one-to-one interaction with the child.
3. False. The use of intelligence and personality tests can provide evidence of a child's underachievement, motivational difficulties, etc. It is not the administering of these tests that is dangerous, it is the improper interpretation and misuse of the results that causes problems.
4. True. In such cases, information about the child's personality may be gathered. Many personality tests are paper-and-pencil tests. Others include sociometric tests, parental reports, anecdotal records, projective tests, and a variety of observational methods.

If you missed any of the above, you should restudy Frame 5^{11} before beginning Chapter 12 on page 77.

Frame 1^{12} continued

infant's surroundings, suggesting that they are primarily maturationally determined. However, the vocalizations of three-month-old infants have been shown to be responsive to social reinforcement from adults, increasing when reinforced by smiles, sounds, and tender pats, and decreasing when such reinforcement is removed. Infants living in unstimulating orphanages or in other environments where there is little adult-infant interaction have often been found to be retarded, both in frequency of vocalization and in the variety of sounds made. Infants in lower class homes have also been found to make fewer and less varied sounds during the second half of the first year than do infants of middle-class homes. Evidence is accumulating suggesting that mothers of middle-class background spend more time vocalizing to their infants than do lower class mothers. Interestingly, frequency of babbling in infancy has been found to be related to vocabulary development at age seven and to adult IQ for girls but not for boys. Whether this sex difference in the relationship between infant babbling and subsequent cognitive development is due to some innate difference between boys and girls, or to mothers' differential patterns of interacting with babies of the two sexes, is not yet clear. More than likely, both types of factors operate to produce these sex effects.

The shift from vocalizing to true language, in which the child begins to use sounds meaningfully in the way that people around him do, begins during the second half of the first year of life. Children begin to show understanding of language in the form of responding appropriately to the speech of others as early as 10 months of age. What a child can understand continues to be greater than what he can say, even through the preschool years. First words typically begin to appear at about 11–12 months of age. Since first words typically develop directly from characteristic babbling patterns, it is often difficult to tell whether or not a given utterance is in fact a first word or simply a vocalization to which proud parents attribute communicative meaning when in fact the child is not yet using it in that way. It is likely that parents' excited response to sound patterns such as *dada* or *mama* may differentially reinforce such patterns, thereby contributing to the appearance of the first communicative word. During this period, one also may hear *expressive jargon,* which consists of gibberish or meaningless sounds but with the intonations and cadence patterns of adult speech. Moreover, such expressive jargon frequently appears in a context in which a child appears to be attempting to communicate. Expressive jargon, when it does appear, usually drops out relatively soon as the child begins to combine words into his first two-word sentences sometime toward the end of the second year.

Acquisition of new words is often slow during the first months following the appearance of the first word. Some investigators have hypothesized that most children are concentrating on learning to walk during this period; once they begin to get steady on their feet, the rate of vocabulary growth expands rapidly. So also does sentence construction, as the child makes sentences of increasing length and complexity. Early words are most often nouns with some verbs and interjections (e.g., hi!, no!). Typically there are no pronouns, articles, prepositions, or conjunctions, and very few qualifying adverbs and adjectives. Articulation of sounds also improves rapidly during this period and during the subsequent four to five-year period. Development of articulation is essentially complete for many children by about eight years of age.

Indicate whether each of the following statements is true or false by writing "T" or "F" in the space provided.

_______1. The sounds made during the first two months of life appear to be relatively little influenced by the infant's surroundings, suggesting that they are primarily maturationally determined.

_______2. Infants respond to social reinforcement from adults after the age of three months, or so and lack of such stimulation may retard development.

_______3. The shift from vocalizing to true language, in which the child begins to use sounds meaningfully in the way that people around him do, begins during the first half of the second year of life.

_______4. Acquisition of new words usually comes rapidly after the appearance of the first word.

Now turn to Answer Frame 1^{12} on page 80 to check your answers.

Frame 2^{12}

Developmental psycholinguistics. Workers in the relatively newly developed field of psycholinguistics have been primarily interested in the development of structured language, that is, in grammar or syntax. Rather than taking the traditional approach of evaluating the child's developing control of grammar by how closely it approximated "correct" grammar in the adult language, psycholinguistics has looked at the grammar of children as it is without regard to what is correct in the adult language. One conclusion to which their research leads is that from the very beginnings of language development, language is grammatical. That is, language has structure, although the structure is not that of adult language.

Although one cannot speak of structure with single words, it should be mentioned that children's first words often function as one-word sentences, or *holophrases.* For instance, "up" may mean, "lift me up," or "I want that toy up there." The first true two-word sentences seem to be abbreviations of adult sentences in which *function* words (as, and, the, by, on) and *markers,* indicating tense or number (e.g., -s, -ed), are systematically left out (e.g., "Bobby hat" instead of "Bobby's hat"). When analyzed linguistically, these two-word sentences prove to be based upon a grammatical system containing two classes of words (word classes being roughly analogous to parts of speech). One class of *pivot words* or *operators* contains relatively few frequently used words. A second larger class is called the *open class* and contains all the remaining words in the child's vocabulary. Each sentence consists of one word from each class, typically with the open-class word occurring second (e.g., go, go home, go bye-bye; or all gone, all gone truck, all gone sticky).

From two-word sentences there is expansion and differentiation of the child's language structure. New word classes begin to appear, and grammatical markers make their appearance. A new form may first appear for a period of time in just one or two words, as though it had been learned by rote; then there may be a very rapid expansion of application to other appropriate instances, as though the child had abstracted a rule for use of the form and was now applying it consistently. For example, the final "-ed" which is a regular ending or marker for past tense may appear, then be generalized to a variety of new situations including some for which it is inappropriate as judged in the adult language. Examples of such inappropriate applications would be go-ed or went-ed. The child learns the regular and most frequently occuring forms first. In his generalization of them he over regularizes applying them to cases

Answer frame 1^{12}

1. True. An infant's crying, cooing, and babbling includes many sounds which are not part of his natural language. Children all over the world babble in similar patterns.
2. True. Infants living in unstimulating orphanages or in environments where there is little adult-infant interaction have often been found to be retarded, both in frequency of vocalization and in the variety of sounds made.
3. False. First words begin to appear *before* the first half of the second year (about 11–12 months).
4. False. Some investigators have hypothesized that most children are concentrating on learning to walk during this period, and once this is learned, steady vocabulary expands rapidly. Early words are most often nouns, with some verbs and interjections (e.g., no!)

If you missed any of the above, you should restudy Frame 1^{12} before turning to Frame 2^{12} on page 79.

Frame 2^{12} continued

for which the adult language has irregular forms. By the time the child is of school age, he has mastered most of the regular and frequently occurring forms.

Traditional theories of language learning have been based on learning theory and have maintained that children learned primarily by imitating others and by reinforcement for use of correct forms. Psycholinguists argue that learning theory explanations are inadequate to explain language acquisition. Instead, the child progressively reconstructs language, abstracting rules of usage which are then applied to new instances. Among the evidence upon which psycholinguists base their contentions is *(a)* the non-English character of early sentences, *(b)* the fact that the child is able to generate new sentences which he has never heard and so could not be imitating, and *(c)* the characteristic errors of over regularity such as *goed, singed* or *foots,* which the child is unlikely to have heard from adults. Further, observation of the conditions under which children's sentences received adult approval showed that approval was contingent upon the truthfulness of the statement, rather than upon whether or not it was grammatical. Comparisons of what children say spontaneously and what they say when imitating adult sentences have also shown that sentences in both instances contain the same characteristic abbreviations and omissions; imitated sentences are *not* more complete or grammatical than are nonimitated sentences.

Is each of the following true or false?

_______1. Psycholinguistics is primarily concerned with the development of structured language, that is, with grammar or syntax.

_______2. Children's first words often function as one-word sentences, or holophases.

_______3. Two-word sentences often consist of one *pivot* word and one *open-class* word.

_______4. Psycholinguists have found that learning theory is quite adequate to explain language acquisition.

Now turn to Answer Frame 2^{12} on page 82 to check your answers.

Frame 3^{12}

Is the capacity for language innate? Many psycholinguists argue that language acquisition depends upon innate attributes of the human brain. This does not mean that the ability to speak a particular language is inborn; children learn whatever language the community around them speaks.

Rather, these psychologists point out that although specific patterns of structure differ for different languages—grammatical forms and rules are not the same—all languages have complex grammars; there are no "primitive" languages. Any child can learn any language with ease. It is the capacity to master structure which is held to be innate.

This position also leads psycholinguists to predict that the general sequence of language acquisition should be similar no matter what language the child is learning. Evidence available so far supports this position. Children learning languages like Russian and Japanese, both very different from English, begin with very few global word classes, have rules for generating sentences from these classes, omit the equivalents of markers and function words, and appear to master a succession of rules so that their grammar successively approximates the adult language around them.

Those that believe there is an innate capacity for language also point to the evidence that there is a *critical period* for language acquisition. A critical period, you will recall, refers to a span of time during which some skill or behavior must be developed if it is going to be developed. Before or after that period, the behavior can be developed with great difficulty, if at all. The critical period for language begins about the first half of the second year and extends to about the age of 12 or 13. Studies of individuals with brain injuries resulting in loss of language are one source of evidence for a critical period. If the injury occurs early in the critical period, the child is likely to show complete recovery. The later in the critical period the injury occurs, the less likely it is that recovery will be complete. If injury occurs after the critical period has ended, the individual may show little or no recovery. Another source of evidence comes from studies of severely mentally retarded children. Language acquisition for these children follows the same patterns as for normal children but begins later and proceeds much more slowly. As a consequence, they may reach the end of the critical period before they have fully mastered language. At this point, their language development effectively stops. The level of language acquisition they have achieved at this point is the level at which they speak for the rest of their lives.

Label each of the following statements true or false.

_______1. Psycholinguists argue that language acquisition is a developmental process having little to do with the innate attributes of the brain.

_______2. Evidence indicates that the sequence of language acquisition is similar no matter what language a child is learning.

_______3. There is evidence to show that there is a critical period for language acquisition.

_______4. Language acquisition for retarded children follows a different pattern from that of normal children and slowly develops throughout their lifetime.

Now turn to Answer Frame 3^{12} on page 82 to check your answers.

Frame 4^{12}

Language in middle childhood. In middle childhood, the child elaborates and expands his mastery of the basic structure and regular forms of his language. His vocabulary grows, though at a slower relative rate. He masters irregular forms and becomes more proficient with compound and complex sentences. There are also words which he may have been using for some time which upon close scrutiny were not used as adults use them. These may include words indicating relationships, transformations, or classification structures. For example, a first-grader asked to make a "because" sentence from two simple sentences might wind up with "The boy fell off his bike because he broke his arm," suggesting that he does not grasp the causal relationship implied by the word "because." In these instances,

Answer frame 2^{12}

1. True. Rather than taking the traditional approach of evaluating the child's developing control of grammar by how closely it approximated "correct" grammar in adults, psycholinguistics has looked at the grammar of children *as it is* without regard to what is correct.
2. True. Up may mean "lift me up." The one word stands for a whole concept.
3. True. Each sentence consists of one word from each class, typically with the open-class word second. For example "go bye-bye" is a combination of the pivot word "go" and the open-class word "bye-bye."
4. False. Rather than learning merely by imitating others and by reinforcement for correct usage, children progressively reconstruct language. Psycholinguists cite evidence which indicates that learning theory is *inadequate* to explain language acquisition.

If you missed any of the above, you should review Frame 2^{12} before turning to Frame 3^{12} on page 80.

Answer frame 3^{12}

1. False. Many psycholinguists argue that language acquisition depends upon innate brain attributes. It is the capacity to master the structure of a language that is innate.
2. True. Children learning languages other than English begin with very few global word classes, have rules for generating sentences from these classes, omit the equivalent of markers and function words, and appear to master a succession of rules. All of these processes are similar to the acquisition of the English language.
3. True. The critical period for language begins about the first half of the second year and extends to about the age of 12 or 13.
4. False. Language acquisition for retarded children follows the same pattern as for normal children but begins later and proceeds much more slowly. As a consequence, they may reach the end of the critical period before they have fully mastered language and may progress no further.

If you missed any of the above, you should reread Frame 3^{12} before turning to Frame 4^{12} on page 81.

Frame 4^{12} continued

the changes taking place in the child's thinking and understanding appear to become integrated into his more exact use of language.

The structures and classifications contained in the language the child learns also gain strength during these years. Word associations provide one example. If asked to give a word that goes with table, a child is likely to respond with a word like "eat," which expresses a function related to tables, and which is a different part of speech than table. Adults are much more likely to say "chair," and more of them are likely to give the same response. The bases of semantic generalization (see Chapter 9) also change with age. In middle childhood, most generalization occurs when words sound alike (right-write), which can be explained by acoustic similarity between the words. In contrast, adults generalize most when words are semantically similar (right-correct) although the words sound different. One study found an intervening period (about 10–14) in which generalization was greatest when words were opposites (right-wrong).

Language and other behaviors. As a child's language competence expands, language plays an increasing role in learning. Verbal mediation, discussed in Chapter 9, is one way in which this occurs. Any feature of language which carries meaning can evidently influence learning. This includes both words and markers such as the comparative ending "-er," the plural "s," and others.

A particularly interesting change occurs in the child's ability to use language to regulate his own behavior. Instructions can effectively initiate, or activate, behavior from very early in a child's life. However, until he is five or six, the child has great difficulty in using instructions to inhibit or keep from doing different behaviors. With children who are just beginning to talk, even direct commands to stop may be ineffective. It is as though an action, once started, must run itself off before the child can stop. With older children, direct commands to stop may be effective. However, they are still unable to use instructions to themselves to inhibit behavior. For instance, if told "When the light is on, squeeze the ball; when the light is off, don't squeeze the ball," they may be able to squeeze when the light goes on but have great difficulty refraining from squeezing when the light is off, unless they are given special assistance. This may be true even when they can tell you when they should squeeze and when they should not. Consider many of the instructions children receive: "When you come into the house, don't slam the door." "When you're in the hall, don't run." It becomes apparent that this difficulty in inhibiting behaviors can enter into children's relationships with adults. This difficulty in using instructions to regulate behavior may be related to changes in the timing of language in relation to other behaviors. If one is going to use language to plan, to think through, or to direct behavior, he has to first think and then act. However, young children evidently don't think first. In the early years of language acquisition, they talk about what they have just done or seen, or about what they are doing now. For instance, give a child a piece of paper and a crayon. The young child immediately begins to draw and names his drawing only later, if at all. The older child decides first what to draw, then sets about doing it. (Note the similarity to the idea of production deficiency, Chapter 9). In general, younger children's behavior appears to be much more directly controlled by immediate situational cues and impulses; if a long hall invites running, the child runs. He "knows better" in the sense that he can remember instructions if asked; but he may not yet be proficient at using the instructions to direct his behavior.

True or false?

________1. In middle childhood, a child's vocabulary grows at a relatively increasing rate as he learns more and more words.

________2. Middle childhood is a time when the structures and classifications contained in the language the child learns gain strength.

________3. As a child's language competence expands, language plays an increasing role in learning.

________4. Young children apparently act before thinking and consequently often act differently from what they "know" is right.

Now turn to Answer Frame 4[12] on page 84 to check your answers.

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Answer frame 4[12]

1. False. In middle childhood, vocabulary grows at a slower relative rate.
2. True. Word associations during middle childhood are often different from those of an adult. During this period, children expand their use of the structures and classifications that provide the foundation for further growth in language competence.
3. True. Verbal mediation is one way in which this occurs. Any feature of language which carries meaning can influence learning.
4. True. Until a child is five or six, he has great difficulty in using instructions to inhibit or keep from doing different behaviors. He may slam a door even though he "knows better." Such behavior may be due to lack of proficiency in use of language rather than disobedience.

If you missed any of the above, you should reread Frame 4[12]. Then turn to Examination 2 on page 139 which covers Chapters 7–12. Chapter 13 begins on page 84.

chapter 13

EMOTIONAL DEVELOPMENT

Frame 1[13]

Emotions are the affective states or feelings we experience when our needs are satisfied or frustrated, and as such, they influence all other aspects of our behavior. Most writers conceptualize emotions on a continuum ranging from those that are pleasant to those that are unpleasant. If our needs are satisfied we may experience the pleasure of happiness, joy, or contentment. If they are frustrated we may become angry, anxious, or depressed. Many categories of human needs have been proposed. Table 13.1 summarizes, rather inclusively, one author's idea of the basic human needs. In many instances our emotions help us to overcome temporary obstacles to need satisfaction. But emotions can be so detrimental as to preclude any possibility of achieving one's goals. During emotional development then, we ideally want to prepare to successfully deal with the unpleasant or frustrating aspects of life, as well as to gain an appreciation of the pleasant aspects.

Emotions influence our behavior in several important ways: they may arouse us from passivity to active involvement, they may direct the course of our actions moving us closer to or further away from our goals, or they may cloud our perception of reality thus causing us to act inappropriately. In any event, each emotion we experience has three basic components: physiological, cognitive, and behavioral. *Physiologically,* we express an emotion as biochemical and neural activity; the adrenal glands may produce excessive quantities of adrenalin, our heart rate may sharply increase, etc. *Cognitively,* we express an emotion by our verbal description of our emotional state; we may say we feel happy or sad, con-

TABLE 13.1

The basic human needs

A. Striving for physical activity
  1. Need to stay alive
  2. Need to avoid danger
  3. Need to relax
  4. Need to recover when ill or injured

B. Striving for sexual satisfaction

C. Striving for love and acceptance
  5. Need to be loved
  6. Need to feel secure
  7. Need to have friends
  8. Need to be popular
  9. Need to belong to groups
  10. Need to please others
  11. Need to be praised

D. Striving for status and recognition
  12. Need to have and keep possessions
  13. Need to be a leader
  14. Need to follow a leader
  15 Need to control others
  16. Need to protect others
  17. Need to imitate others
  18 Need to have prestige
  19. Need to escape blame
  20. Need to feel that one is "right"

TABLE 13.1 *(continued)*

E. Striving for intellectual life and creativity
  21. Need to express oneself
  22. Need to seek stimulation
  23. Need to think
  24. Need to acquire facts
  25. Need to relate and interpret facts
  26. Need to organize
  27. Need to find explanations

F. Striving for realization and improvement of the self
  28. Need to grow
  29. Need to be normal
  30. Need to overcome handicaps
  31. Need to work toward a goal
  32. Need for independence
  33. Need to oppose others
  34. Need to resent coercion
  35. Need to find oneself

Modified and rearranged from the following sources: A. H. Leighton, "Psychiatric Disorder and Social Environment," *Psychiatry,* 18:267–283, 1955; L. Raths and L. Metcalfe, "An Instrument for Identifying Some Needs of Children," *Educational Research Bulletin,* 24:169–185, 1945; R. N. Sanford, et al., *Physique, Personality and Scholarship,* National Research Council, 1943; H. Schacter, *How Personalities Grow,* McKnight & McKnight, 1949, Chap. 2. The exact arrangement is the writer's [L. Cole] own. Reprinted from L. Cole, *Psychology of Adolescence* (New York: Holt, Rinehart, & Winston, Inc., 1961), p. 258.

tented or depressed. *Behaviorally,* an emotion is expressed as an observable event; we may embrace a loved one or have a temper tantrum.

While each of these components is simultaneously present in each emotional experience, no single component predicts what emotion the individual may be in fact experiencing. The physiological activity that accompanies fear may be indistinguishable from the stirred-up state of the sprinter as he prepares to run the 100-yard dash. Cognitively, one may say that he feels great and that his life is going well, yet be fraught with anxiety. Behaviorally, crying may accompany hapiness, despair, embarrassment, etc. Perhaps you have suffered the embarrassment of mistakenly judging a friend's emotional state. If so, you can appreciate the problem the psychologist has in attempting to study emotional behavior.

Indicate whether each of the following statements is true or false by writing "T" or "F" in the space provided.

________1. Emotions are the affective states or feelings we experience when our needs are satisfied or frustrated, and as such, they influence all other aspects of our behavior.

________2. During emotional development, we ideally want to prepare and to be able to successfully deal with the unpleasant or frustrating aspects of life and gain an appreciation of the pleasant aspects.

________3. Emotions have three basic components: physiological, cognitive, and behavioral.

________4. No single component predicts what emotion the individual may in fact be experiencing.

Now turn to Answer Frame 1^{13} on page 86 to check your responses.

Answer frame 1^{13}

1. True. Frustration may lead to anger, anxiety, or depression. Satisfaction may lead to happiness, joy, or contentment. Emotions may arouse us from passivity, they may move us closer or farther from our goals, or they may cloud our perception of reality.
2. True. Emotions can help us overcome temporary obstacles, but they can also be so detrimental as to preclude need satisfaction. Dealing with our emotions, then, is a critical aspect of development.
3. True. Physiologically, we express an emotion as biochemical and neural activity; cognitively we express emotion by our verbal description of our emotional state; behaviorally, an emotion is expressed as an observable event.
4. True. Behaviorally, crying may accompany happiness, sadness, fear, etc. As a consequence it is difficult even for experts to study emotional behavior.

If you missed any of the above, you should restudy Frame 1^{13} before beginning Frame 2^{13} below.

Frame 2^{13}

Like all behavior, emotional behavior is a product of the individual's biological makeup and his environmental experiences. Both genetics and maturation give evidence of the biological aspects of emotionality. Evidence for a genetic component is provided by studies of twins. These studies have shown identical twins to be more similar than same-sex fraternal twins in certain personality traits, interests, behavior disorders, and psycho-pathological states. Nevertheless, genes do not directly influence behavior, rather they exert their influence through biochemical and electrophysiological activity. Such influences more than likely predispose the individual to behave in a certain fashion when he experiences favorable environmental circumstances.

Behavioral components of emotions, such as crying, smiling, and physical activity, clearly are maturationally influenced. Even the radical behaviorist John Watson concluded that learning could not account for the initial appearance of such emotional experiences as love, fear, and rage. Watson argued that the environment contributed the eliciting stimuli for these emotions, while the emotional expression itself was instinctive.

A major attempt to outline the ontogeny of emotions was undertaken by Bridges. She suggested that by the third month of life, distress and delight differentiated from the newborn's sole emotion, general excitement. Toward the end of the first year of life, delight further differentiated into elation and affection, followed during the ensuing years by jealousy and affection for adults and for peers. Although normative data such as that compiled by Bridges describes the typical age when certain behaviors appear, normative data does not tell us how the infant learns to appropriately or inappropriately express or inhibit his behavior. We can gain insight into this information, however, by studying the reinforcement patterns utilized by parents during child rearing. That reinforcement patterns can influence early emotional behavior was pointed out by Watson in his study of conditioned fear in an infant. But it really isn't necessary to enter the psychological laboratory to know that a large component of our emotional behavior is learned. When in the presence of a toddler a parent shudders and openly expresses fear or upset during a severe thunderstorm, it isn't very long until the toddler displays the same emotional reaction.

A final influence on our emotional expression, although perhaps more sociological or anthropological than psychological, is that of cultural standards for emotional expression. For example, our culture generally frowns on men crying. Yet crying is permissible if one is mourning. If a little boy is hurt he is told not to cry. And yet, if an athletic team loses a crucial game, crying is acceptable provided it is not excessive. Cultural conventions also influence our social-emotional behavior and our values. Thus, not only is it inappropriate for males to cry but other males who do cry are categorized as "cry babies" and may be socially ostracized by their peers.

We see then that emotional expression in each individual is a composite of his genetic predispositions, his rate of maturation, the reinforcement patterns he encounters, and the cultural conventions that guide him, and those who are rearing him, in matters of emotional expression. With this general orientation to the nature of emotions, let us consider the development of several prominent or basic human emotions.

Label each of the following statements as true or false.

_______1. Emotional behavior is the result of genetic makeup and has little to do with environmental circumstances.

_______2. Emotional experiences such as love, fear, and rage are mostly learned from others.

_______3. A large component of our emotional behavior is learned from others.

_______4. Emotional expression in each individual is a composite of his genetic predispositions, his rate of maturation, the reinforcement patterns he encounters, and the cultural conventions that guide him.

Now turn to Answer Frame 2^{13} on page 88 to check your answers.

Frame 3^{13}

Affection (love). It is an obvious truism that our interpersonal relations begin with caretaker-infant interaction. Initially, this interaction is one of assuring the infant's very survival. Feeding him when he is hungry, pacifying him when he is distressed, cleansing him when he is dirty, these are the interactions that reinforce the infant's *dependence* on his caretakers. For many years the infant was thought to be passively involved in these early interactions. Today, we know him to be an active participant in all facets of his socialization. For example, the infant's cry is initially undifferentiated, that is, whether he is distressed, hungry, or in pain, his cry sounds are the same. By one month of age, however, the hunger cry and pain cry become recognizably different. Thus, the infant is able to selectively, although not necessarily voluntarily, signal to his caretakers just which caretaking activity is required. This is what we mean by *active* participation—when the infant initiates or at least plays a role in determining what is to happen to him.

Between the first and second month two significant behaviors appear—eye-to-eye contact between infant and caretaker and spontaneous smiling—that mark the beginning of the infant's emotional *attachment* to his primary caretaker. It appears to be the case that there is a *critical period,* roughly from 4 to 12 months of age, during which the attachment relationship must be formed. If the infant is denied the opportunity to establish an affectional bond with one or more primary caretakers, he may suffer emotional deprivation syndromes such as *anaclitic depression* or *hospitalism.* These pathological states were first identified by Rene Spitz, who attributed their etiology to maternal deprivation suffered during the critical period for attachment. More recent research suggests that both *sensory deprivation* and maternal (caretaker) deprivation contribute to these early pathologies of affective development. Although the effects of sensory and emotional deprivation are not irreversible as once believed to be, it is true that the longer the child suffers from neglect the more difficult it is for him to recover from that neglect.

The infant's emotional attachment to his primary caretakers is then the first vital step in his emotional development. It is not, however, the first affective system to which he has been exposed, nor is it the only affectional system that he will have to cultivate. For example, Harry Harlow has identified and systematically studied five affectional systems that he suggests are present to one degree or another in all primate species. These affectional systems are *(a)* the mother's love for her infant, *(b)* the infant's love for its mother, *(c)* the child's love for its peers, *(d)* male love for female and vice versa, and *(e)* the father's love for his family. Although each of these

Answer frame 2^{13}

1. False. Like all behavior, emotional behavior is a product of the individual's biological makeup *and* his environmental experiences.
2. False. Infants express the emotional behavior of fear and rage long before any learning process could occur. Even Watson, the radical behaviorist, argued that the emotional
3. True. A child often learns to express the same emotional reaction to thunder, animals, and other such phenomena as his parents or peers.
expression itself was instinctive and the environment *elicited* the behavior in such instances.
4. True. Emotional expression is influenced by a number of factors in our environment and in our makeup.

If you missed any of the above, you should reread Frame 2^{13} before turning to Frame 3^{13} on page 87.

Frame 3^{13} continued

affective systems can be studied in its own right, they are in reality interdependent systems.

In addition to attachment, normal emotional development requires one to break away from or detach oneself from the initial love object. The process of *detachment* begins when the infant acquires self-locomotion. As the toddler's locomotor skills become increasingly proficient there is a corresponding increase in his desire to be self-sufficient and to actively explore the mysteries of his environment. To a large extent the "terrible twos" are terrible because of the conflict between the toddler's insatiable desire to explore and the parents' desire to maintain a semblance of order in the household. The subsequent conflicts of childhood and adolescence may be stress producing but they are also necessary if the child is to gain its independence so that it can form other affective relationships.

Developmental psychologists have traditionally focused on the problems the child faces as it strives to gain its independence, with little attention given to the emotional problems encountered by parents. Keep in mind that parents must also change the nature of their affective relationship with their children—a task that is very difficult for many parents to achieve. Parents must first act to assure the very survival of their offspring. They then provide a warm and supportive environment promoting the attachment process. The difficult problem for the parent is then to provide the conditions that foster the child's independence, remaining supportive, nurturant, and understanding without becoming overprotective or domineering. That many parents have difficulty making this transition has been well documented.

Label each of the following statements as true or false.

________1. Until a child is about two years of age, he or she is completely dependent upon the parent and is *passively* involved in these early interactions.

________2. An infant's emotional attachment to his primary caretakers is the first vital step in his emotional development.

________3. At the age of two or so, a child becomes more attached to his parents and becomes more dependent upon them for support.

________4. Developmental psychologists have traditionally placed too much attention on the emotional problems of parents during the early years of child rearing and not enough emphasis on the child's problems.

Now turn to Answer Frame 3^{13} on page 90 to check your answers.

Frame 4[13]

Anger (rage). Most of the young child's in-home anger is related to parental restrictions associated with eating, sleeping, and elimination. For many insensitive parents the bathroom, bedroom, and dining room become battlegrounds where the most important aspect of the child's behavior is being subservient to parental demands. Other parents treasure these situations as opportunities to strengthen the child's understanding of his bodily functions, to encourage his independence and skill mastery, and to nurture family cohesiveness and mutual regard. These parents try to set realistic goals for their children, are aware of individual differences among their children, and attempt to assist the child's acquisition of personal competence rather than submissiveness. Beginning with the preschool years, peer conflict progressively increases as a source of anger. Peer-elicited anger in the young child is quite transitory. Friends may have a violent fight in the morning, but come afternoon they are once again inseparable and amiable pals. Research has identified a number of other variables that are related to anger and irritability in children. Anger or irritability increases when children are in large groups, in confining spaces, are sick or tired, or are in the presence of more than two adults. Many studies have shown sex to be an important correlate of anger expression. Boys tend to be more negativistic and to show more anger outbursts than do girls. These differences are related to biological differences between the sexes and to differential patterns of child rearing. For example, boys receive substantially less social disapproval for anger outbursts than do girls. On the other hand, girls are more likely to be rewarded for dependent, affiliative, and conformity behavior than are boys. Keep in mind, however, that in most sex differences the within sex variability is equal to if not greater than the between sex variability.

Fear (anxiety). Many of our fears are learned either directly through imitation and reinforcement or are acquired vicariously. Studies have shown children's fears to be highly correlated with maternal fears. Freudian theory suggests the common occurrence of several fears in as much as they originate in the instinctive mechanisms of aggression and destruction. But empirical studies of castration anxiety, fear of punishment, and fear of loss of love do not support this aspect of Freudian theory. That is, if the child's experiences give him just reason for fearing punishment, he will fear it. If he has no reason to be fearful of punishment, he will not fear it.

Earlier we noted Watson's demonstration that even young infants can learn specific fears. Nevertheless, learning theory is hard put to adequately explain many of our fears. Remember that even Watson suggested that fear was one of three instinctively based emotions. Since instinctive explanations of behavior do not really explain anything, modern psychology has rejected such explanations. Rather it refers to *species specific behavior* or to *fixed action patterns.* This means that a certain behavior is one of the identifying characteristics of a species, but in addition, that there are specific stimuli that regulate the occurrence of the behavior. Two such fears are *stranger fear* and *separation anxiety,* both of which are integral components of the attachment process. In most children stranger fear peaks at approximately 9 months, while separation anxiety peaks at about 18 months of age. In general, the stronger the attachment the more intense is the infant's fear of strangers and of being separated from the attached object.

Children also tend to be fearful of sudden and loud noises, of certain animals like snakes and large dogs, of darkness, and of heights. Some of these fears show a change with increasing age, for example, fear of darkness tends to increase with age while fear of noises tends to decrease. Nevertheless, the fear-eliciting properties of any stimulus are related to the situation in which it occurs. Even to the adult, the combination of noise plus darkness can be a most effective fear stimulus, magnified in effect when the adult is alone. One of the more prominent sex differences in fear behavior is that girls more openly express their fears than do boys. Again, there are both biological and cultural reasons for such differences.

Love, anger, and fear, although basic human emotions, obviously are not the only emotional experiences we have. Nevertheless, they are illustrative of the stirred-up affective states we have that motivate us to mate, to avoid danger, and to achieve our goals. On the negative side, they may cause us to

Answer frame 3^{13}

1. False. An infant is an *active* participant in all facets of his or her socialization. An infant can vary his cry to signal what his needs are (active participation) by the age of one month.
2. True. There seems to be a critical period, roughly from 4 to 12 months of age, during which the attachment relationship must be made.
3. False. Normal emotional development requires the child to break away from the initial love object (usually the parent). This breaking away occurs about the age of two and is necessary if the child is to gain his independence so that he can form other affective relationships.
4. False. Very little attention has been given the emotional problems of parents. The difficult problem for the parent is to provide the conditions that foster the child's independence, remaining supportive and understanding, without becoming overprotective or domineering.

If you missed any of the above, you should reread Frame 3^{13} before turning to Frame 4^{13} on page 89.

Frame 4^{13} continued

think and act irrationally and to construct elaborate defenses to protect our self-concept. Whatever their effect, emotions are mechanisms that breath life into the human personality. Without them we are not much more than automatons.

True or false?

________1. Girls tend to be more negativistic and to show more anger outbursts than boys.

________2. All of our fears (anxieties) are formed from experiences with dangerous objects or events.

________3. Two identifying characteristics of our species are *stranger fear* and *separation anxiety.*

________4. All of the human emotions may be summarized by the terms love, anger, and fear.

Now turn to Answer Frame 4^{13} on page 92 to check your answers.

chapter 14

IDENTIFICATION AND IMITATION

Frame 1[14]

What are the influences that affect the child's developing personality? On the one hand, there are persisting individual differences in children which are evident from infancy; these include differences in attributes such as activity, responsiveness to stimuli, adaptability to changes in schedule, approach or avoidance of new situations, and others. Such persisting differences may predispose a child to develop some personality attributes more readily than others. At the same time, it is very clear that personality development is strongly influenced by the child's social environment, and especially by his parents.

Identification refers to a child's internalization or incorporation of behaviors, attitudes, standards, or other attributes of a model into his own personality. Identification initially takes place in early childhood, during the preschool years. This early identification is usually with parents, and identification with the same sex parent is considered to be particularly important. However, identification is not something that happens in early childhood and stops there. First, an identification, once formed, has a continuing effect since the attributes which have been internalized are now part of the child's own personality. Second, the child will continue to internalize aspects of the individual with whom he is identified. Third, as the child grows older and his social world expands, he is exposed to a continually widening range of persons with whom he may identify: the admired peer, the idolized teacher or other adult, TV and athletic heroes, to name a few. Such later identifications must be incorporated into the child's already existing personality structure. Consequently, they probably never have the degree of impact of the early identification with parents. Nonetheless they are an important influence in continuing personality development throughout childhood and on into adulthood.

There are many theories of identification and the mechanisms by which it occurs. The concept of identification came first from Freud and psychoanalytic theory and has been an important concept in social learning theories of personality development as well (see Chapter 4). Freud thought that there were two somewhat different types of identification. *Anaclitic identification* (also called *developmental identification)* takes place when the mother, whom the child has come to love and trust, is unavailable to him. This inevitably happens; mothers must be away for various reasons, or must take care of other children and other responsibilities. At such times the child fears that he has lost his mother's love. He reacts by internalizing aspects of her behavior, so that in a sense she (or some aspect of her) is always with him. Through this mechanism the feelings of separation and loss are reduced. Social learning theorists have interpreted developmental identification as beginning with learned association of the mother's behavior with need satisfaction, so that the mother's behaviors become secondary reinforcers. By producing some of the mother's behavior himself, the child provides for himself some of the reinforcement usually received from mother. Again, this permits him to cope with the fear of loss of love which arises when he is separated from mother. While anaclitic identification occurs in both sexes, Freud believed

Answer frame 4^{13}

1. False. Boys tend to have more angry outbursts. The differences in behavior between the sexes are due to biological differences and child-rearing practices.
2. False. Many of our fears are learned either directly through imitation and reinforcement or are acquired vicariously. This is not to say, however, that fear is never based on experience. If a child's experiences give him just reason for fearing something, he will fear it.
3. True. In most children, stranger fear peaks at approximately 9 months, while separation anxiety peaks at about 18 months of age.
4. False. Love, anger, and fear are not the only emotional experiences we have. They are only illustrative of the many affective states we have that breathe life into the human personality and make each individual different and interesting.

If you missed any of the above, you should restudy Frame 4^{13} before turning to Chapter 14 on page 91.

Frame 1^{14} continued

that it was the major form of identification for girls. There is some research evidence which supports this notion; girls are more responsive to fear of loss of love than are boys.

The second type of identification described by Freud has been called *identification with the aggressor, aggressive identification*, or *defensive identification*. The child feels threatened by some powerful figure, and he experiences fear or anxiety as a result. The child internalizes aspects of the aggressor's behavior as a means of coping with the anxiety which the threat engenders. It is as though by sharing the aggressor's behaviors, the child also feels that he shares the aggressor's power, and as a consequence the feeling of anxiety is reduced or neutralized. The identification which develops out of the Oedipus conflict for boys is the Freudian prototype of this type of identification; the child incorporates attributes of the threatening father. A somewhat different interpretation of this mechanism, *status envy theory*, points out that the aggressor not only has power to threaten the child, he is also the recipient of rewards the child desires for himself but cannot have. (In the Oedipus prototype, the father receives the mother's love.) This interpretation holds that the child identifies with those whom he envies—those who have the power to obtain gratifications which are unavailable to the child. By sharing the attributes of such powerful individuals, he may also share vicariously the rewards which are available to them but not to himself.

Indicate whether each of the following statements is true or false by writing "T" or "F" in the space provided.

_______1. Children's identification with their parents or guardians stops sometime in their early childhood.

_______2. As a child matures, he begins to identify with peers, teachers, athletes, and other such people who have a greater impact than that of the early identification with parents.

_______3. Freud's anaclitic identification takes place when the mother, whom the child has come to love and trust, is unavailable to him.

_______4. Freud's aggressive identification or defensive identification is the internalization of an aggressor's behavior as a means of coping with the anxiety which he engenders.

Now turn to Answer Frame 1^{14} on page 94 to check your responses.

Frame 2^{14}

The *power theory* of identification combines features of both the above conceptions. According to power theory, a child identifies with a model who controls resources. The model has the power to reward and to punish others, including the child himself. Whether or not the child himself is the one rewarded or punished, he identifies with individuals perceived as having these powers. Note the contrast with the above positions: anaclitic identification requires that the child himself has been rewarded; defensive identification requires that the child himself has been threatened; status envy theory requires that the child himself has *not* received rewards.

A final theory, *similarity theory,* suggests that identification occurs when an individual perceives some similarity between himself and a model. Once such a perception has developed, the child may notice other attributes of the model and is likely now to believe that he shares these attributes as well.

This list does not exhaust the theories of identification which have been proposed, although it does summarize the major themes which have run through most theories. Which of the theories is true? Notice that the different theories are not mutually exclusive: more than one of the processes described could be operating in any given situation. There is some evidence that power theory may describe the most potent basis for identification. For instance, little boys who show the greatest sex typing (which is assumed to be an index of their identification with their fathers) describe their fathers as being *both* more rewarding and more punishing than do little boys who show less sex typing. Moreover, children have been found to imitate a powerful model about twice as often as a second model present, regardless of whether the child himself or the second model was the recipient of the rewards from the powerful model. (Note, though, that the children *did* also imitate the second model.) However, there is also evidence for the operation of each of the other processes described as well. If you think of real human interactions, there are nearly always signs of more than one emotion: love may be mixed with hostility or fear, fear may be accompanied by respect. It seems most likely that identification is a complex process in which any or all of the mechanisms described may play a part, with sometimes one, sometimes another mechanism predominating.

Label each of the following statements as true or false.

________1. According to power theory, a child identifies with a model who controls resources.

________2. Similarity theory suggests that identification occurs when a child perceives some similarity between himself and a model.

________3. Available research evidence suggests that the most potent form of identification is described by similarity theory.

________4. Identification is most likely a complex process in which any or all of the mechanisms described above may play a part, with sometimes one, sometimes another mechanism predominating.

Now turn to Answer Frame 2^{14} on page 94 to check your answers.

Frame 3^{14}

Identification versus imitation. A child who has identified with someone should, from any of the viewpoints described above, act more like that person than like other people. In fact, if one wished to study identification, similarity of behavior in some form is all that can actually be observed; identification is a construct inferred from the amount of similarity of behavior. However, a child who imitates someone else acts like that other person. Even a casual observer can notice that children imitate and that they begin doing so very early in life. Social learning theorists have tended to argue that since children imitate and since similarity in behavior is what is observed, observational learning is what is

Answer frame 1^{14}

1. False. An identification, once formed, has a continuing effect since the attributes which have been internalized become part of the child's own personality.
2. False. These outside influences have an important effect on personality development, but usually never have the impact of the early identification with parents.
3. True. At such times a child fears that he has lost his mother's love and reacts by internalizing aspects of her behavior.
4. True. It is as though by sharing the aggressor's behaviors, the child also feels that he shares the aggressor's power, and as a consequence the feeling of anxiety is reduced or neutralized.

If you missed any of the above, you should restudy Frame 1^{14} before turning to Frame 2^{14} on page 93.

Answer frame 2^{14}

1. True. Notice the difference between this and Freud's theories: Freud's anaclitic identification requires that the child himself has been rewarded; Freud's defensive identification requires that the child himself has been threatened. Status envy theory requires that the child himself has not received rewards.
2. True. Once such a perception has developed, the child may notice other attributes of the model and is likely to believe that he shares these attributes as well.
3. False. Evidence suggests that power theory describes the most potent form of identification. Children have been found to imitate a powerful model about twice as often as a second model present.
4. True. There is evidence to support each of the processes of identification. No doubt each plays an important role.

If you missed any of the above, you should reread Frame 2^{14} before turning to Frame 3^{14} on page 93.

Frame 3^{14} continued

occurring. Whether it is called identification or imitation reflects the theoretical biases of the speaker, and not any differences in the processes to which the terms refer. As a consequence, many social learning theorists have turned toward intensive study of the principles of observational learning.

Those who would argue that identification and imitation are different phenomena have raised a number of points of comparison. As observational learning theory has developed, it has expanded so that it can account for many of the phenomena which have been claimed as unique to identification; for instance, observational learning theory can account for long-term, enduring predispositions toward acting like another as well as for transient imitation of specific acts; it can also account for nonimitative behaviors which arise from an imitated principal or standard (think of adolescents engaged in activities of which their parents do not approve but which arise out of standards they learned from their parents). Of the issues raised by those who separate identification and imitation, probably the major issue yet to be resolved is the question of degree of emotional involvement between the child and the model. A child may imitate models with whom he has no emotional involvement. For identification, it is assumed that the child is emotionally involved with the model; for instance, the child may be assumed to experience vicariously the emotions appropriate for the model (feelings of pleasure when he succeeds, disappointment when things go wrong, etc.). Degree of emotional involvement is difficult to observe; consequently, there is little research evidence relevant to this question. What this means, however, is that the issue cannot yet be resolved; the question of degree of emotional involvement may yet prove to be a useful criterion for distinguishing between identification and imitation.

Observational learning. Students of observational learning not only believe that the processes they study are applicable to the concept of identifi-

Frame 3[14] continued

cation but they also believe that they are describing a more general process, a major type of learning which can account for the acquisition of new behaviors much more readily than can traditional learning theories. Before either classical conditioning or operant conditioning can occur, some response must be available to be conditioned. Further, the child must perform the response himself before it can either become associated with a conditional stimulus, as in classical conditioning, or before it can be reinforced, as in operant conditioning. New responses can be shaped, to be sure, but shaping is far too time-consuming to account for much of the very rapid proliferation of new behavior in developing children. Observational learning theory maintains that an individual learns through watching others! He need not perform the response himself to learn it. Neither is reinforcement necessary for him to learn. Here, a sharp distinction is made between learning and performance. Reinforcement is not necessary to learn, but it is very important for whether or not the child performs what he has learned. This is true for both direct reinforcement of what the child does himself and for vicarious reinforcement, or reinforcement the child sees others get for engaging in some behavior. To illustrate, in one experiment children saw a film in which a model behaved aggressively. One group saw the model rewarded following the aggressive behavior; another group saw him punished. When tested, the group who saw the model rewarded showed a high level of aggression, both imitative and nonimitative; the group who saw the model punished showed a low level of aggressive behavior. A control group who saw no film were somewhere in-between. These same children were then offered attractive rewards for doing what the model had done. Under these circumstances, all groups showed equivalent and high levels of imitative aggression. This evidence demonstrates that all groups had learned equally well.

The difference between model-reward and model-punished groups on the first test shows the effect of vicarious reinforcement on performance. The disappearance of this difference when children were offered attractive rewards demonstrates the effect of direct reinforcement on performance. The fact that the model-rewarded group showed both more imitative *and* more nonimitative aggression on the first test demonstrates the additional point that observing a model not only serves as a means of learning new behaviors (imitative aggression) but it may also elicit other similar behaviors already in the child's repertoire, or disinhibit behaviors the child has learned to suppress (nonimitative aggression).

Children don't imitate all models indiscriminately; models differ in their effectiveness. Sex of model and sex of child are one important pair of factors. Boys are more likely to imitate male models and girls, female models (though boys' reluctance to imitate female models is much greater than is girls' reluctance to imitate male models). The status or power of the model is another important factor; children are more likely to imitate high-status, powerful models than models with low status or little power. Another important factor is the nurturance of the model; by and large, a warm, nurturant model is more likely to be imitated than is a cold, aloof model.

While observational learning is clearly an important process in behavior development, there are probably limits to what can be learned by imitation. Observational learning is probably most effective when the observed behaviors are not too complex, when the child has already learned components of the observed behavior, or when the new behavior involves novel recombinations of previously learned behaviors. Where observational learning alone is not sufficient, a judicious combination of demonstration by models with opportunity to practice together with reward for correct performance may provide a very potent learning situation.

Label each of the following statements as true or false.

_______1. Imitation and identification are generally agreed to be the same thing.

_______2. Observational learning theory maintains that an individual learns through watching others and reinforcement is not necessary for him to learn.

_______3. Children seem to imitate all models indiscriminately so that their behavior reflects everyone they meet.

_______4. Evidence shows that children can learn even the most complex tasks through observational learning.

Now turn to Answer Frame 3^{14} on page 98 to check your answers.

Frame 4^{14}

Sex-role identity and sex typing. One of the areas of development in which identification has been assumed to play a central role is in the establishment of *sex-role identity,* which refers to the degree to which an individual believes himself to be masculine or feminine, and in *sex typing,* which refers to the acquisition of behaviors defined as appropriate for males or for females. While few psychologists would say that identification is the only process through which sex-role identity and sex typing are established, most would agree that these processes are facilitated by identification or modeling.

Sex-role identity has its origins early in life, perhaps as early as 18 months and certainly by the ages of 2 or 3. Observations of children whose sex of assignment is changed for medical reasons (a child initially assigned as a boy might be reassigned and raised as a girl, or vice versa) show that if the shift occurs after the ages of 18 months to 2 years, the child may show considerable psychological disturbance. There is no psychological disturbance for shifts before this age, however; the child grows up with the sex-role identity of the sex to which he has been assigned. There is one important qualification to this statement: the parents and other significant persons in the child's life must accept the shift without ambivalence. (This last point is generally true. Individuals with ambivalent sex-role identities nearly always have histories of ambiguous rearing, having been treated in some ways as sons and in some ways as daughters.) In these early years, the child is very insistent as to his own sex—try calling a three-year-old boy a girl, or vice versa! However he does not yet appear to understand the implications of being a boy or girl as to differentiated behavior or as to himself as an adult. For example, up to the age of four or so, little boys may assert that they can grow up to be mommies.

In addition to developing a conception of himself as a boy or girl, the child must come to terms with the behavior patterns designated as appropriate for males and females. Every culture has a *sex-role standard,* an idealized description or stereotype of what men and women should be like. For instance, the American sex-role standard for men includes attributes such as assertive, strong, independent; for women, attributes such as passive, dependent, nurturant. Children are becoming aware of the adult sex-role standards by the late preschool years. Interestingly, their descriptions of what men (or women) are like are very traditional, even in instances where their particular family pattern departs from the traditional. Evidently the much-discussed shifting of standards and blurring of sex-role distinctions generates no confusion at this age. The case may be different at adolescence, by which time the young person is much more aware of subtleties and at which time he must begin actually working out his own adult behavior patterns. However, there is no clear evidence to this effect.

By the late preschool years, children are also aware of the sex appropriateness of clothing, toys, games, and activities, and are becoming increasingly selective in choosing those appropriate for their own sex. This is particularly true of boys; after the age of five or so, boys rarely choose toys or activities classed as feminine, whereas girls are much more likely to make choices classed as masculine up to the

Frame 4^{14}continued

late elementary school years. This difference may reflect the great pressure put on boys not to be sissies, in contrast to the relative acceptance of the girl who is a tomboy. It may also reflect girls' feelings that the masculine role has greater status and is more attractive than the feminine role. Paralleling the increasing selectivity for sex-appropriate activities is the sex cleavage in choice of playmates. Boys become increasingly reluctant to play with girls, and vice versa. In fact, there is often outright hostility and rejection between the two sexes. Again, exceptions are more likely to be girls than to be boys. The sex cleavage reaches its peak at about second grade and does not really break down until children are entering adolescence.

Sex typing and sex-role identity are separate. For instance, it is quite possible for girls to be sure of their feminity and yet to have many behavior patterns usually sex typed for boys. However, sex typing and sex-role identity do usually influence each other. Sex-role identity influences selection of activities and behaviors, making it more likely that appropriately sex typed behaviors will be performed. At the same time, acquisition and successful performance of appropriately sex-typed behaviors undoubtedly reinforces and strengthens sex-role identity. In cases of mismatch, the child showing inappropriately sex-typed behaviors may encounter disapproval or rejection. If this occurs, it may weaken his self-confidence, including the strength of his sex-role identity. Both sex-role identity and sex typing are influenced by many factors, such as adequacy of available role models, direct reinforcement, or punishment for appropriate or inappropriate behaviors, and indirect influences from a variety of sources including textbooks and the mass media.

True or false?

_______1. Sex-role identity does not begin until a child reaches the age of adolescence.

_______2. Families which adopt liberated roles for the husband and wife will have children who will completely adopt the more liberal family patterns.

_______3. Young boys and girls are aware of the sex appropriateness of clothes, games, and activities; and this selectivity parallels a cleavage in choice of playmates.

_______4. Sex typing and sex-role identity are interrelated and rarely conflict.

Now turn to Answer Frame 4^{14} on page 98 to check your answers.

Answer frame 3^{14}

1. False. Both may refer to similar processes, but for identification, it is assumed that the child is emotionally involved. A child may imitate models with whom he has no emotional involvement.
2. True. Reinforcement is not necessary for learning, but it is very important for the child performing what he has learned.
3. False. Boys are more likely to imitate male models, and girls imitate female models more readily. Children of both sexes are more apt to imitate high-status, powerful models and/or warm, nurturant models.
4. False. Observational learning has its limits. It is probably most effective when the observed behaviors are not too complex, when the child has already learned components of the observed behavior, or when the new behavior involves novel recombinations of previously learned behaviors.

If you missed any of the above, you should reread Frame 3^{14} before turning to Frame 4^{14} on page 96.

Answer frame 4^{14}

1. False. Sex-role identity has its origins early in life, perhaps as early as 18 months and certainly by the ages of 2 or 3.
2. False. Children become aware of adult sex-role standards by the late preschool years. Their descriptions of what men (or women) are like are very traditional, even in instances where their particular family pattern departs from the traditional. This may change as the child gets older, but the evidence is not clear.
3. True. After the age of five or so, boys rarely choose toys or activities classed as feminine and become increasingly reluctant to play with girls, and vice versa.
4. False. It is quite possible for girls to be sure of their feminity and yet to have many behavioral patterns usually sex typed for boys. Sex typing and sex-role identity do usually influence each other, however.

If you missed any of the above, you should restudy Frame 4^{14} before turning to Chapter 15 on page 99.

chapter 15

MORAL DEVELOPMENT

Frame 1[15]

Conscience and moral behavior: The "thou shalt nots." Every social group has standards for the behavior of its members; there are types of behavior which are not approved or tolerated, and these standards must somehow be transmitted to children. American children are usually trained to refrain from activities such as lying, cheating, stealing, or being cruel to others. When people speak of conscience they are usually referring to the extent to which an individual has accepted some such set of standards as his own and acts in accordance with them (or feels uncomfortable if he violates them). Children are not born with such standards. They must learn them, a process which takes a considerable amount of time. There are some signs of incipient conscience formation in the early childhood years; for instance, a child may approach an attractive but forbidden item over which he has gotten into trouble before, say "Don't touch" or "No-No" and refrain from touching. However, such early self-restraint is usually specific to the particular action rather than reflecting any general standard. For the most part, toddlers do pretty much what they want to do at the moment.

With the late preschool years and especially with middle childhood, the development of moral restraints proceeds much more rapidly. Freud believed that conscience was one part of the superego, which develops as a consequence of the child's identification with a parent at the close of the Oedipal period. Through identification, the child was assumed to internalize the parent's standards of behavior as his own; from this time on, violation of these standards would result in feelings of guilt which the child might attempt to alleviate by atonement, confession, apology, or which he would avoid by not violating the standards. However, it is questionable whether standards are in fact internalized, at least during middle childhood. For instance, one study of sixth graders found little evidence of self-criticism—taken as an indication of comparison of one's own behavior to some standard—in response to transgression. Instead, it appeared that self-criticism was learned in the same way as were behaviors such as confession, restitution, or apology; all appeared to be learned as a means of alleviating the anxiety over transgression which had become conditioned to transgression as a result of punishment. Identification theory would also predict that guilt and conscience development should be related; instead, conscience development is related to intelligence, which is part of ego functioning rather than superego functioning. Theorists have pointed out several reasons why identification may be less directly related to conscience development than was formerly believed. For one, children are selective in imitating models; a child could be strongly identified with a parent but have internalized other aspects of the parent's behavior than moral behavior and standards. For another, parental models for moral behavior may not be clear; the parent's moral actions may not be seen by the child—or the standards on which such actions are based may not be made explicit but must be inferred from what the parent does. Since sensitivity to the cues of others and ability to infer their thoughts or feelings from their behavior do not begin to develop until middle childhood, it would be surprising indeed to find such sophisticated responses in children of this age. There is the additional point that the child's thinking does

Frame 1[15] continued

not go much beyond concrete situations until after middle childhood; perhaps one should not expect to find general principles for behavior until adolescence. Identification may still play some limited role in conscience development. By preadolescence there is evidence of a relationship between identification and standards expressed in evaluating the behavior of others. However, such standards are not much in evidence in the more painful and difficult task of evaluating one's own behavior.

Even when children "know" that some behavior is wrong, they are not very consistent in refraining from doing it. A child who does not cheat in one situation may do so in another. A child who does not usually cheat, may lie. The situation in which the child finds himself is more important in determining what he actually does than is his knowledge of moral standards. Adult moral behavior is also strongly influenced by situations, so one should not see this as a phenomenon unique to children. Unfortunately, at this point little is known about situations which could help explain why moral behavior changes from situation to situation. Some factors which may be important are the ease or difficulty of the particular behavior in the given situation, the likelihood of getting caught, the penalties for immoral behavior if caught, and how important it is to the child to achieve some goal (get a good grade, win a game).

Indicate whether each of the following statements is true or false by writing "T" or "F" in the space provided.

______1. As soon as children are born, they have a conscience that is based on standards of behavior that are inherited.

______2. It is clear that standards are internalized by the time a person reaches middle childhood.

______3. There is reason to believe that identification may be less directly related to conscience development than was formerly believed.

______4. The situation in which a child finds himself is more important in determining what he actually does than is his knowledge of moral standards.

Now turn to Answer Frame 1[15] on page 102 to check your responses.

Frame 2[15]

The way in which parents discipline their children is related to moral development. Three main types of parental discipline have been identified: (1) *Power assertion*–the parent's reason for discipline is "I said so"; he is likely to use physical punishment. (2) *Love withdrawal*—the parent does not use physical punishment but expresses disapproval through such means as turning his back or threatening to leave the child. Notice that this technique is less explicit than is power assertion in informing the child of how he is in the wrong. It also lasts longer and has no clear termination point comparable, for example, to the end of a spanking. Use of this technique is associated with strong feelings of guilt in children. (3) *Induction*—the parent gives reasons and explanations for the punishment. For example, he might point out the negative consequences of the child's actions for himself or for others. If one looks at mothers and fathers separately, the strongest relationships occur between mothers' discipline patterns and moral development. For mothers, the most frequent findings are that power assertion is associated with weak moral restraint; induction techniques are associated with strong moral restraint; and there is no consistent relationship between love-withdrawal techniques and moral restraint. Affection between parent and child is also associated with strong moral restraint. For fathers, the evidence is unclear. However, children from father-absent families show weaker moral development than do children from father-present families. This finding indicates that fathers do play an important part in development of moral behavior, although the mechanisms through which their influence is felt are not yet understood.

Frame 2^{15} continued

Prosocial behavior: The "thou shalts." Morality consists of doing good as well as avoiding wrong. Sympathy, consideration for others, helping, sharing, generosity, altruism are all examples of doing good according to our social ethic. All of these require sensitivity to the feelings and needs of others. Some, for example, generosity and altruism, imply denial of the self in the interest of others as well. Despite their obvious importance, prosocial behaviors such as these have received little systematic attention until recent years.

Preschool children show little spontaneous prosocial behavior, as any preschool teacher who has worked with children on sharing or taking turns can attest. With kindergarten and the elementary school years, instances of such behaviors undergo a rapid increase. Recall that during these years, sensitivity to others and role-taking ability are also undergoing rapid development. Such skills are probably necessary before a child can recognize another person's needs or feelings, as he must do to perform a prosocial act.

Parent-child interactions influence development of prosocial behaviors as well as of moral restraints. For girls, the relationships appear to be similar in both instances—prosocial behaviors, like moral restraints, are strongest when there is affection and inductive discipline, weakest when discipline is power assertive, and not related to love withdrawal. For boys, however, prosocial behavior is strongest when discipline is power assertive and when there is affection between parent and child, weakest when love-withdrawal techniques are used, and unrelated to induction. This difference may reflect differential socialization of boys and girls, since consideration for others is an important part of the feminine sex role but not of the masculine sex role. It may also be that prosocial behaviors take different forms in boys and girls; in one study, boys showed consideration for others most often by standing up for others against the group, whereas girls were more likely to show sympathy or to help.

A different way of categorizing parent practices is to determine whether parents stress *proscriptive values,* which tell a child what *not* to do (don't be selfish, don't lie), or *prescriptive values,* which emphasize what a child should do (it's nice to share with others; you should always tell the truth). In one study, nearly all of the children of parents who stressed prescriptive values were willing to share, whereas very few of the children of parents who stressed proscriptive values shared.

Most experimental studies of sharing or other prosocial behaviors have dealt with the social learning of prosocial behavior. A model performs some prosocial act such as donating part of his "reward" to charity. The child is then observed to see whether he does likewise. Both adult models and peer models are effective in eliciting prosocial behavior. Nurturant models are, predictably, more effective than are nonnurturant models. More refined issues—such as the effect of what the model says compared with the effect of what he does—have not yet been resolved.

Label each of the following statements as true or false.

_______1. For mothers, power assertion is associated with strong moral restraint; induction techniques are associated with weak moral restraint; and love-withdrawal techniques result in the strongest moral restraint.

_______2. Prescriptive values stress what a child should do rather than what he should *not* do.

_______3. Parent-child interactions influence development of prosocial behaviors as well as of moral restraints.

_______4. Parents who emphasize proscriptive values (don't be, etc.) are more successful with influencing prosocial behavior than parents who emphasize prescriptive values (it's good to share with others).

Now turn to Answer Frame 2^{15} on page 102 to check your answers.

Answer frame 1[15]

1. False. Children must learn standards of behavior, a process which takes a considerable amount of time.
2. False. With the late preschool years and especially with middle childhood, the development of moral restraints proceeds rapidly; however, it is questionable whether standards are in fact internalized.
3. True. A child may identify with his parent but not internalize the parent's moral standards and behavior. Also, parental models for behavior may not be clear. Identification may still play a limited role in conscience development, but not as great as thought by early theorists.
4. True. This is true of adults as well. A child who does not cheat in one situation may do so in another and so forth.

If you missed any of the above, you should restudy Frame 1[15] before turning to Frame 2[15] on page 100.

Answer frame 2[15]

1. False. Power assertion for mother is associated with weak moral restraint; induction is associated with strong moral restraint as is affection between parent and child; the association between love withdrawal and moral restraint is unclear. Less is known about the father's influence.
2. True. Children must learn what they can and should do as well as what they should not do. Parents influence the development of both values.
3. True. For girls, the relationship is similar—prosocial behavior and moral restraint are strongest when there is affection and inductive discipline. For boys, however, prosocial behavior is strongest when discipline is power assertive and when there is affection between parent and child.
4. False. In one study, nearly all of the children of parents who stressed prescriptive values were willing to share, whereas very few of the children who stressed proscriptive values shared.

If you missed any of the above, you should reread Frame 2[15] before beginning Frame 3[15] below.

Frame 3[15]

Moral judgments. Those who study moral judgments are concerned with the question of how an individual thinks about moral issues and how he decides that some action is good or bad. Piaget, the first person to study moral judgments, described two major stages in their development. Young children show *moral realism* (also called *morality of constraint* or *heteronomous morality*). Whether an act is good or bad depends upon its consequences, regardless of the intentions of the actor. For instance, a child who breaks 15 cups is judged to be worse than a child who breaks only one, even though the first child broke the cups while trying to help mother, whereas the second child threw the cup in a fit of anger. The moral realist also believes that rules and regulations are sacred and unchangeable, rather than recognizing their dependence upon social convention. During the middle childhood years, moral realism gives way to *moral relativity* (also called *morality of reciprocity* or *autonomous morality*). The intentions of the actor become more important than the consequences of his action, rules and regulations are seen as matters of mutual consent and reciprocal interchange, and the child's judgments become more flexible, in contrast to the rigidity and authoritarianism of the younger child. Piaget believes that the transition from moral realism to moral relativity comes about primarily through the child's interactions with his peers, with whom he interacts as an equal. Conflicts with peers must be solved through mutual agreement and reciprocal interchange, whereas the power of parents over children makes such reciprocal interchange less likely in the home. The question of the differential influence of peers and parents on moral judgments has not yet been fully investigated, however.

A much more elaborated description of stages of development of moral judgments comes from Kohlberg. Kohlberg believes that there are three levels of development of moral judgment, with two stages at each level. At the *Premoral Level,* judgments are based upon external consequences of an action. In *Stage 1, Obedience and Punishment Orientation,* deference to the power of others and avoidance of punishment determine moral judgments. At *Stage 2, Naive Hedonistic and Instrumental Orientation,* judgments depend upon whether the results of action will be satisfying to the self and—perhaps incidentally—to others. At the *Level of Morality of Conventional Role Conformity,* the child appeals to social convention, the expectations of others, and maintenance of the status quo in making his moral judgments. Notice that the emphasis is still upon demands external to the individual, although the principles are more general than those at the Premoral Level. *Stage 3, Good-Boy–Good-Girl Morality,* reflects a desire to please others and to maintain good interpersonal relations. In *Stage 4, Morality of Authority and Maintenance of the Social Order,* doing one's duty, showing respect for authority, and maintaining law and order form the basis for moral judgments. Only at the third and highest level, *Morality of Self-Accepted Moral Principles,* do judgments based upon internal principles rather than external authority appear. In *Stage 5, Morality of Contract, Individual Rights, and Democratically Accepted Law,* the individual recognizes that socially accepted standards may conflict, that rational decision resulting in social contract is possible; he may stress the relativity of moral judgments. In *Stage 6, Morality of Individual Principles of Conscience,* the individual gives evidence of internalized principles which apply universally in making his moral judgments.

Developmental studies show that at about age seven, nearly all of children's moral judgments are at the premoral level. Judgments at Stages 3 and 4 begin to appear at about age 10, although they do not make up a majority of children's judgments until the early teen years. Only during the teen years do judgments at the highest level, Stages 5 and 6, begin to appear. Nevertheless, even then they constitute only a minority of the judgments made. Development of moral judgments may continue beyond the teen years for many individuals, but there is reason to believe that many adults never advance beyond the second level of moral judgments. A number of studies suggest that moral judgments do develop in the sequence described here regardless of social setting, although the approximate ages for appearance of the different types of judgments may vary with social setting.

Moral judgments can be influenced through modeling or through discussions of conflicting judgments. Studies of modeling have shown that judgments can be influenced either up or down, which has led some to question whether there really are stages in development of moral judgments. However, it is easier to shift judgments up than down, and shifts up persist longer than do shifts down. Also, shifts up are limited; it is fairly easy to get shifts one stage up but difficult to get shifts more than one stage up from an individual's original level.

Label each of the following statements as true or false.

________1. For young children, whether an act is good or bad depends upon its consequences, regardless of the intention of the act.

________2. According to Kohlberg, only at the third and highest level of development of moral judgment do judgments based upon internal principles rather than external authority appear.

________3. Developmental studies show that at about age seven, nearly all of children's judgments are based upon the external consequences of the action.

________4. Moral judgments can be influenced either *up* or *down* through modeling or through discussions of conflicting judgments.

Now turn to Answer Frame 3^{15} on page 104 to check your answers.

Answer frame 3¹⁵

1. True. Young children show moral realism. The moral realist believes that rules and regulations are sacred and unchangeable, rather than recognizing their dependence upon social convention.
2. True. Only during the teen years do judgments at the highest level begin to appear and even then they constitute only a minority of the judgments made.
3. True. This is called the premoral level. At about age 10, the child reflects a desire to please others and shows some respect for authority.
4. True. It is easier to shift judgments up than down, and shifts up persist longer, but it is difficult to get shifts more than one stage up from an individual's original level.

If you missed any of the above, you should reread Frame 3^{15} before beginning Frame 4^{15} below.

Frame 4^{15}

Attitudes and values. Children's developing attitudes and values in a number of areas seem to progress in comparable ways. In the late preschool or middle childhood years, they begin to learn labels for concepts and persons (Democrat, Republican; government, democracy, communism; Catholic, Protestant, Jew; kike, wop, nigger, honky). They have only the sketchiest notions of what the terms mean; their interpretations of them often provide considerable amusement for adults. Nonetheless, they simultaneously learn evaluations of the terms, that is, whether the terms refer to something good or something bad. These evaluations, which are usually learned at home, may have considerable strength. They also tend to be absolute, as though the children operate at the ends of the good-bad continuum but are insensitive to the more temperate positions of the middle. Evaluations thus precede mature understanding.

Such evaluations can be seen operating in areas such as children's friendship choices. In the case of ethnic attitudes, children may notice differences between racial groups by the age of three or four and may avoid contact with children of other ethnic groups by first or second grade. Membership in religious or political groups does not have the visibility of ethnic group membership. Consequently, a child may tell you that he doesn't like Republicans or Catholics, but this evaluation will have no effect on his behavior until he is more aware of the meanings of the concepts and their application to individuals.

During middle childhood and adolescence, children acquire information and new understanding through a variety of sources: formal instruction, encounters with members of other groups, reconciling conflicts between sets of evaluations (Billy is my friend; Billy is a Catholic; do I change my ideas about Catholics or stop being friends with Billy?). By eighth grade, children's (especially boys') knowledge of politics may be as great as that of their teachers or of the average adult. This does not, of course, necessarily mean that they are well informed.

The adolescent years are particularly important for development of attitudes and values. Up to adolescence, the child has pretty much accepted the attitudes and values of his parents. Now, however, he comes increasingly in contact with others whose attitudes and values differ from his own. He is also in the process of defining himself as an independent individual separate from his family. His changing thinking skills may contribute by making him able to imagine hypothetical ideal worlds. By late adolescence, the young person's main conflicts with his family are usually over religion, politics, and the like. (There are conflicts over his increasing independence in early adolescence too, but they are more likely to be over issues such as hours, chores around home, dating, dress, use of the family car.)

Adolescence is probably the period of most rapid change in attitude and values for most individuals, as they make the transition into adulthood and work out their particular resolutions to the issues that confront them. This transition is complicated for the adolescent in our culture by the fact that there is a great deal of discontinuity between the attitudes and values taught to children and those which operate in the adult world. The child is taught that sexuality is wrong and that he must be obedient. With adolescence, he must become a sexual being and must be independent. He may have been taught that it is wrong to smoke, lie, swear, or cheat; yet he may find that he is expected to practice, or at least condone, such behaviors in order to be accepted as an adult. He must be practical, not idealistic. Reconciling these discontinuities in his training, together with reconciling the competing values to which he is increasingly exposed, imposes a good deal of stress on many adolescents.

The issues of the conflict between parents and peers is perhaps the most widely publicized aspect of the competing pressures upon adolescents. Amidst cries of "What is the younger generation coming to?" many adults deplore the values and activities of young people. An adolescent subculture does exist, and it is perhaps most apparent in the United States where there is sufficient affluence to support young people for a number of years and where young people are given much more freedom than in other parts of the world. Young people certainly are influenced by their peers. Yet many of the values of the adolescent subculture are not so much different values from those of older generations than they are different expressions of the same values. Another relevant consideration is that the amount of influence of the peer culture depends largely on the issue under consideration. In matters of dress, dating, or modes of behavior with peers, peer norms prevail. But in matters of longer range impact, such as vocational decisions, the majority of adolescents consider their parents' advice more important than the advice of their peers.

Finally, the maximum divergence between young people and their parents probably occurs in late adolescence. As adults, these same adolescents are more likely than not to hold the same political party preference, or to attend the same church, as their parents. The early influence of parents appears in subtler forms as well. For example, studies of student activists on college campuses have shown that such activist students frequently come from homes in which the parents themselves are informed and active in politics—parent and child may disagree on effective modes of political participation, or on particular political positions, but the parental value of the importance of politics has been transmitted to the child.

True or false?

________1. Children learn attitudes toward concepts in the late preschool years (e.g., communism, democracy, etc.) and tend to think in absolutes.

________2. Children do not develop attitudes toward ethnic groups until their school years or through personal experience with ethnic groups before school age.

________3. A teen-ager's attitudes toward dress, dating, and behavior with friends is more influenced by his peers than his parents.

________4. The maximum divergence between young people and their parents probably occurs in late adolescence.

Now turn to Answer Frame 4^{15} on page 106 to check your answers.

Answer frame 4^{15}

1. True. Children seem to operate at the ends of the good-bad continuum but seem more insensitive to the more temperate middle positions.
2. False. Children may notice differences between social groups by the age of three or four and may avoid contact with children of other ethnic groups by first or second grade. Attitudes toward ethnic groups do not necessarily demand personal experience among young children. They have positive or negative attitudes very early.
3. True. But in matters of longer range impact, such as career decisions, the majority of teen-agers consider their parents' advice more important than the advice of peers.
4. True. Nevertheless, the influence of parents may appear in many subtle forms. For example, a politically active liberal student may have actively conservative parents. The parents' influence is revealed in his activism. The adolescent years are a period of great pressure on young people because of the conflicting values of their group influences, especially parents versus peers.

If you missed any of the above, you should restudy Frame 4^{15} before beginning Chapter 16.

chapter 16

THE DEVELOPMENT OF SELF-CONCEPT

Frame 1^{16}

Throughout the life-span, we encounter an extraordinarily diverse set of experiences, any one of which may have long-term consequences for our development. The effects of these experiences combine to give definition to the person, that is, they contribute to the characteristics of the individual subsumed by the term *personality*. One characteristic of the individual of utmost importance is the opinion or concept that he has of himself.

The sum total of consistent and nurturant caregiving provides the prerequisite conditions for establishing mutual trust between caretaker and infant. The infant's first experience of self is gained in the context of such caretaker-infant interaction. As the toddler begins to detach himself from his caretakers and as he makes significant strides in his cognitive and linguistic skills, he achieves a new level of sophistication in his concept of self, as evidenced by the three-year-old's declaration, "I not ittle punkin, I ittle goil."

Equally important in the acquisition of self-concept is the infant's discovery of his body. As he acquires the names and locations of his body parts, as he discovers the power of his verbal abilities, and as he becomes increasingly competent in associating his behavior with eliciting stimuli and contingent reinforcing events, he achieves the first meaningful expression of self-awareness. During the elementary school years the child's social environment greatly expands. Educational experiences and peer relations offer him new opportunities for evaluating his concept of self. Finally, the identity crisis of adolescence serves to focus attention on the importance of self-concept. The adolescent's perception of his body, his possessions, and his peers, and his successes and failures combine to influence his concept of himself as an adequate or an inadequate person. Thus, to a great extent the person's self-concept serves to provide him with a conception of his personal authenticity and integrity. Generally, the more the self concept is positively valued, the more highly integrated and stable one's personality should be.

The self. As used in psychology, "self" has several meanings. *Self as object* refers to the person's attitudes and perceptions of himself. Self in this sense is *phenomenological.* In other words, the individual responds to reality as he perceives it, that is, from his own frame of reference, not from that of others. Self defined in this way is roughly the picture one gets when one asks someone to describe himself. *Self as process* refers to the individual's activity, such as thinking, perceiving, or adapting to the environment. Finally, in addition to our objective reality-oriented self, we have an idealized version of what we would like to be; this is the *ideal self.*

Self-actualization. One of the central assumptions of phenomenological theories of self is the assertion that we are inherently motivated to develop our capacities to maintain or enhance our concept of self. Note that the phenomenologist is not saying that the self-concept itself is inherited. Rather, the motivational force to acquire an integrated concept of self is inherent. This motive is typically referred to as the tendency to become *self-actualized.*

Self-actualization theory has a number of spokesmen, among the noteworthy are Abraham Maslow and Carl Rogers. Maslow discusses self-actualization within the framework of a general theory of motivation based on a "need" concept. Hierarchically, from the most basic to the highest, these needs are: *(a)* physiological, *(b)* safety, *(c)* belongingness *(d)* esteem, and *(e)* self-actualization. The actualized individual is one who has a stable personality, enjoys his vocation and his avocations, is free from guilt and anxiety, stands by his personal set of ethical standards, and explores rather than fears the unknown. To achieve this state of self-actualization the individual must have his lesser needs satisfied. Such satisfaction has its developmental origin in early socialization. Persons who have been made secure and emotionally strong in the early years of development tend to remain secure and strong in their later years.

Phenomenologists accept the tenet that behavior is a product of both past and present experience. However, they further assert that the effects of such experience are dependent upon the meaning the individual assigns to his experience. One prominent phenomenologist Carl Rogers, asserts that the tendency to self-actualize is inherent. The child's goal-directed behavior represents his initial attempt to evaluate his behavior against the standards he perceives others hold for him. Thus, if the child perceives an experience as enhancing his actualizing tendency, he comes to value that experience positively. Conversely, experience detrimental to the actualizing tendency may be perceived as threatening and would be negatively valued. The emerging self-awareness resulting from these value decisions gives rise to a *need for positive regard*—a need that is realized through social interaction. Having established satisfactory positive regard, the individual can move toward satisfying his *need for self-regard.* In contrast to the social nature of positive regard, self-regard is independent of social interaction.

When discrepancies between self and experience become too great, the individual may experience threat and evoke defenses to counter this threat. Such defense mechanisms include the Freudian ego defense mechanisms of rationalization, compensation, fantasy, reality denial, internalization, projection, regression, repression, and sublimation. Threat can produce *conditions of worth* which frustrate the need for self-regard and thwart natural actualization. An important aspect of self-concept and feelings of worth involves the individual's perception of who is responsible for controlling his behavior, that is, where does the locus of control lie—in the self or in others?

Frame 1^{16} continued

Indicate whether each of the following statements is true or false by writing "T" or "F" in the space provided.

_______1. Generally, the more the self concept is positively valued, the more highly integrated and stable one's personality should be.

_______2. Self as process refers to a person's attitudes and perceptions of himself.

_______3. One of the central assumptions of phenomenological theories of self is the assertion that we are *inherently* motivated to develop our capacities to maintain or enhance our self-concept.

_______4. In Maslow's need hierarchy, self-actualization is the most basic and primary need.

_______5. According to Rogers, self-awareness resulting from various value decisions gives rise to a need for *positive regard.* Having established positive regard, an individual can move toward satisfying his *need for self-regard.*

Now turn to Answer Frame 1^{16} on page 110 to check your responses.

Frame 2^{16}

Locus of control. Locus of control refers to that aspect of behavior that is regulated by the expectations the individual has of attaining his valued goals by his own behavior. The expectations refer to the consequences of his experience set in a socially structured psychological environment. The psychological situation may be perceived in two ways: either under personal control or under nonpersonal control. The *internal control of reinforcement* is defined as the perception of positive and/or negative events and as being a consequence of one's own actions, thereby under personal control. When the perception of positive and/or negative events is unrelated to one's own behavior in certain situations, a nonpersonal control, or *external control,* beyond the person is implied. Investigators have found evidence to suggest that perceived internal locus of control is positively related to intelligence test performance, academic achievement, maternal permissiveness, and maternal attitudes toward early independence training.

Self-consistency. Self-consistency refers to the tendency to maintain our concept of self by seeking out experiences that are congruent with it or that will reinforce it. Thus, our willingness to enter into particular social situations, to establish friendships, or even to establish intimate heterosexual relations will be affected by the degree of esteem we have achieved in our concept of self. The greater the inconsistency of our self-concept, the further we are away from the wholly integrated personality. In other words, the greater the instability of our concept of self, the less likely we are to fulfill our actualizing tendency and the more likely we are to suffer from role diffusion. If there is a tendency to preserve self-consistency that is analogous to preservation of physiological homeostasis, then one would expect to find conditions that both promote and work against self-consistency just as there are conditions that disturb homeostasis as well as conditions that preserve it. One such condition that affects consistency of self-concept is one's *perceptual style.*

Perhaps you have recently encountered the individual who in the face of overwhelming conflicting factual evidence simply cannot change his way of thinking. No matter how convincingly you present the evidence, you cannot effect a change in the other person's perception of reality. Such perceptual sets or styles appear to be independent of the specific perceptual information available to the individual.

Witkin has identified stable perceptual styles which he labels *field dependent* and *field independent.* In a perceptual task the field-dependent person focuses on and is controlled by background information. Field-independent individuals, however, ignore background information, focusing on the central features of the perceptual field critical for the task at hand. Moreover, field-dependent persons appear passive, low in self-esteem, dependent, submissive, and tend to be prejudiced. On the other hand, field-independent persons tend to be self-confident, independent, creative, original, and low in anxiety.

Such perceptual styles do not merely appear fullblown in adults; they are in fact developmental in origin. For example, field-dependent and field-independent perceptual styles have been found in 10 year-old children. Sex differences in field dependence-independence appear by at least eight years of age. Perceptual styles have been correlated with maternal attitudes. Mothers of field-dependent children tend to be restrictive, domineering, and encouraging of conformity behavior. Conversely, mothers of field-independent children tend to emphasize individuality, to reward early independence and responsibility, and to encourage curiosity behavior.

Thus, it should be obvious that one's perceptual style, one's unique way of perceiving the world, can greatly affect one's perception of self, one's perception of others, and one's ability to adapt to environmental change. These in turn influence perception of self. Of special interest to the developmental psychologists is the high degree of stability such perceptual styles show over the life-span. Moreover, the suggestion that genetic predispositions, parental attitudes, parental child-rearing practices, etc., affect the formation of perceptual styles, points to the complex developmental processes that contribute to this characteristic of the self.

Label each of the following statements as true or false.

________1. People who see positive and/or negative events as being a consequence of one's own actions are said to have external control.

________2. Self-consistency refers to the tendency to maintain our concept of self by seeking out experiences that are congruent with it or that will reinforce it.

________3. Field-dependent persons appear to be passive, low in self-esteem, dependent, submissive, and tend to be prejudiced.

________4. Perceptual styles have been correlated with maternal attitudes in that mothers of field-dependent children tend to emphasize individuality, to reward early independence and responsibility, and to encourage curiosity behavior.

Now turn to Answer Frame 2^{16} on page 110 to check your answer.

Frame 3^{16}

Early in this chapter we noted that the infant's first awareness of self was gained through his physical being. The influence of one's physical growth and development on one's concept of self is by no means restricted to the period of infancy. There is evidence to suggest that negative feelings about one's body appear as early as the preschool years. Nevertheless, some of our knowledge concerning the relationship between body type and personality traits has been acquired through the study of early and late maturation.

In general, boys who mature late tend to be perceived as less physically attractive, less masculine, and less concerned with their personal appearance. Moreover, they tend to be anxious and to have difficulties establishing satisfactory heterosexual relations. When judged by peers, these boys were seen as talkative and bossy, and were less popular, unlikely to be leaders, and high in attention-seeking behavior. Early maturing boys typically were perceived as less dependent on status needs and generally were more socially mature than late maturers. The physical, social, and psychological environments for late maturers are different from those of early maturers by virtue of the stimuli they provide to others because of their late maturation. Thus, it is likely that the greater reinforcement received by the late maturer for his feelings of inadequacy and insecurity creates a *self-fulfilling prophecy* situation. That is, "I feel inadequate and insecure, others ex-

Answer frame 1^{16}

1. True. The adolescent's perception of his body, his possessions, his peers, and his successes and failures combine to influence his concept of himself as an adequate or inadequate person.
2. False. Self as *object* refers to a person's attitudes and perceptions of himself. Self as process refers to the individual's activity, such as thinking, perceiving, or adapting to the environment.
3. True. This motive is typically referred to as the tendency to become *self-actualized.* The self-concept is not inherited, rather the motivational force to acquire an integrated concept of self is acquired.
4. False. Self-actualization is the "highest" need, and to achieve this state all the lesser needs must be satisfied.
5. True. In contrast to the social nature of positive regard, self-regard is *independent* of social interactions.

If you missed any of the above, you should restudy Frame 1^{16} before turning to Frame 2^{16} on page 108.

Answer frame 2^{16}

1. False. Such people are said to have *internal control.* Persons who see little relation between their behavior and environmental events are said to have *external control.*
2. True. Our willingness to enter into particular social situations, to establish friendships, or even to establish intimate heterosexual relations will be affected by the degree of esteem we have achieved in our self-concept.
3. True. On the other hand, field-independent persons tend to be self-confident, independent, creative, original, and low in anxiety.
4. False. Mothers of field-dependent children tend to be restrictive, domineering, and encouraging of conformity behavior. Mothers of *field-independent* children have the described characteristics.

If you missed any of the above, you should reread Frame 2^{16} before turning to Frame 3^{16} on page 109.

Frame 3^{16} continued

pect me to be inadequate, therefore, I must be inadequate." So one behaves inadequately; surely such a vicious circle is detrimental to one's feelings of worth.

Differences between early- and late-maturing groups of boys persist into adulthood. Men who were early maturers participate in more formal and informal social activities and are more likely to work at jobs requiring social interaction than are men who were late maturers. Early maturers are also more conventional and conforming. Men who were late maturers are likely to be more independent and more creative than early maturers. There is also evidence suggesting that late maturers may cope more successfully with the changes of middle age than do early maturers; perhaps they learned some helpful coping skills while going through their relatively stressful adolescence.

There is considerably less factual information known about the long-term effects of early or late maturation for girls than is known for boys. There is some evidence to suggest that early maturing girls are socially disadvantaged in their heterosexual peer relationships. Late maturing girls, however, are similar to their male counterparts in that late maturation is associated with poor self-concept.

Birth order also contributes to one's concept of self as well as to many other facets of the individual. Of course, there is the common notion that all the parent's mistakes are visited upon the firstborn child. Be that as it may, there do appear to be compensatory benefits to being a firstborn. Studies of eminence show disportionately high numbers of firstborn children to have achieved eminence. Firstborns also tend to score higher on measures of academic achievement, and more firstborn children attend college than later born children. Because of their greater contact with parents, firstborns tend to speak earlier than do later borns. On the other hand, firstborns tend to worry more about being physically harmed. Firstborn males tend to be more easily influenced by the opinions of others; firstborn females, however, seem to be less susceptible to such influences.

One's self-concept can also be sharply influenced by one's *educational experience,* particularly by the quality of teaching one encounters. For example, in one study comparing "good" teachers and "bad" teachers, good teachers tended to create a positive educational atmosphere, that is, one that was especially favorable for fostering feelings of self-regard and personal worth.

True or false?

________1. The influence of a child's physical growth and development on his concept of self is limited to the period of infancy.

________2. Boys who mature late generally seem to have more self-confidence and have little difficulty establishing satisfactory relations with girls.

________3. Firstborns tend to score higher on measures of academic achievement; more attend college, speak earlier, and achieve eminence more often than later born children.

________4. One's self-concept can be sharply influenced by one's teachers in school.

Now turn to Answer Frame 3^{16} on page 112 to check your answers.

Answer frame 3[16]

1. False. There is evidence to suggest that negative feelings about one's body appear as early as the preschool years. Nevertheless, some of our knowledge concerning the relationship between body type and personality traits has been acquired through the study of early and late maturity.
2. False. Late maturing boys often feel inadequate and insecure and are generally socially disadvantaged compared to early maturers.
3. True. Firstborn males are also more easily influenced by the opinions of others, and they tend to worry more about being physically harmed.
4. True. Good teachers tend to create a positive educational atmosphere which is especially favorable for fostering feelings of self-regard and personal worth.

If you missed any of the above, you should restudy Frame 3[16] before beginning Chapter 17.

chapter 17

PARENT-CHILD RELATIONS

Frame 1[17]

Throughout the previous chapters we referred indirectly to various ways in which parents influence the behavior and development of their children. Our focus was more on the processes of development than on the specific social agents which influence these processes. In this chapter we shift focus to consider more direct influences parents exert on the behavior and development of their children. Although we will concentrate on parent effects, keep in mind that in the model of development advanced in Chapter 1, behavior was conceptualized as a product of reciprocal parent-child influences. Accordingly, it is very difficult to determine whether specific aspects of the parent-child relationship are attributable to the propensities of parents or to those of children. Nonetheless, it is an obvious truism that parents do influence their children; the literature on the effects of such influences is indeed substantial. This chapter surveys the nature of some of these influences.

Problems in parent-child research. Before proceeding, however, a note of caution concerning the nature of much parent-child research is in order. Traditional data in this area has been obtained either through interview techniques or by parental completion of survey inventories. Usually mothers have been asked to recall aspects of their child's development or their own child-rearing practices several years in the past. Such recall procedures have proven to be of questionable reliability—perhaps because the detailed inventory or interview often requires parents to make extremely difficult judgments about their children's early behavior, or because parents are overly tempted to give socially desirable responses to such personal questioning. Feeding, weaning, and toilet training, level of the child's aggressiveness, and opposite-sex parent's role in child rearing are particularly susceptible to such recall error.

Much data in parent-child relations research are based on reports from mothers which oftentimes falsely assume that their judgments reflect those of their husbands. Thus, mothers are asked to provide information about both the antecedent conditions that give rise to the quality of parent-child relationship and about their child's reaction to parental rearing practices. Complete reliance on maternal report reflects cultural stereotypes of role differentiation. One popular notion concerning parental influences on the child is that the mother plays a far greater role in child rearing than does the father, and consequently has a much greater impact on the child's development. Indeed, our culture has traditionally defined the woman's role in terms of her child-rearing duties. Fathers, on the other hand, have achieved role definition mainly through their occupations, that is through their activities outside of the home. It is not too surprising then that children tend to perceive their mothers as friendlier and as more nurturant than their fathers. Fathers are more likely to be perceived as interfering and punitive as well as being more competent than mothers. This perception derives, in part, from the power accorded the father as the financial support of the family but also is influenced by cultural expectations for sex appropriate parental behavior. As the American family changes with increasing numbers of married women in the labor force, it will be interesting to note any concomitant changes in children's perceptions of parental roles and behavior. We must include behavior as well as role, because in some instances children's perceptions are discordant with actual parental behavior. For example, in one study preschool children were asked what form of punishment their parents usually employed. Even though most parents did not use spanking as a primary means of punishment, most children said spanking was the typical punishment they received. Even more interesting is the fact that the children felt that spanking was the most appropriate punishment for their misbehavior.

Further confounding of interview or inventory data is introduced by the lack of consistency in parental self-reports over time. Many solutions for these shortcomings of parent-child research have been proposed, including *(a)* conducting research that deals with the current behavior of parent and child rather than their past interactions; *(b)* conducting research that permits precise control and specification of the critical influences of parents on their children, perhaps in laboratory settings; and *(c)* designing well-controlled observational research that will permit analysis of the reciprocal nature of parent-child interaction.

Indicate whether each of the following statements is true or false by writing "T" or "F" in the space provided.

_______1. It is important to the understanding of child development to know that the influence of parents on children is unilateral.

_______2. Most parent-child research consists of observation of family interaction by trained psychologists.

_______3. Much data collected on parent-child relationships may be biased by cultural stereotypes of role differentiation.

_______4. Interview or inventory data about parent-child interactions is confounded by a lack of consistency in parental self-reports over time.

Now turn to Answer Frame 1¹⁷ on page 114 to check your responses.

Frame 2¹⁷

Motivation for parenthood. Perhaps every time you read of child abuse, hear parents bemoan the impositions children place on their former life style, or contemplate the effects of overpopulation, you may ask yourself the same question that has occurred to us under similar circumstances: Why do peo-

Answer frame 1^{17}

1. False. Behavior is a product of *reciprocal* parent-child influences. Accordingly, it is very difficult to determine whether specific aspects of the parent-child relationship are attributable to the propensities of parents or to those of children.
2. False. Traditional data in this area has been obtained either through interview techniques or by parental completion of survey interviews.
3. True. The roles of the father and the mother in our society have been stereotyped so that reports of behavior may more closely reflect the stereotype than actual behavior.
4. True. New research techniques have been proposed which would deal with the shortcoming of present research methodology.

If you missed any of the above, you should restudy Frame 1^{17} before turning to Frame 2^{17} on page 113.

Frame 2^{17} continued

ple have children anyway? Asking the question is considerably easier than answering it. Parents have children for a variety of reasons. Some because they truly love children, others because they desire additional help with the family chores or family business, still others because they use children (not necessarily consciously) to satisfy their neurotic needs for affection. Many parents who are experiencing difficulty with their marriage, perhaps contemplating divorce, have children in order to "save" their marriage. Unfortunately, it all too often is the case that the childless unstable marriages continue to be unstable marriages with the addition of children. In fact, having children often makes matters worse, since the child becomes the scapegoat for both parents. Other couples have children because of social pressure; inferences being that something is "wrong" with a couple if they do not desire to have children. There is some recent evidence to suggest that one's motivation for parenthood is related to the future quality of the parent-child relationship. Although the previous statement may sound blatantly obvious, the long-term effects of prechild attitudes towards parenthood have not been systematically investigated.

Parent-child relations and basic care of infants. Initial parent-child interaction revolves around the basic care requirements of infants. Infants need to be fed, diapered, and cleansed; eventually they must be self-sufficient in each of these tasks. For some time our culture has emphasized bottle feeding in preference to breast feeding. Recently, however, there has developed a strong movement advocating the desirability of breast feeding. Considering the collective literature from psychiatry, psychology, and biochemistry, there does seem to be a number of desirable advantages to breast feeding for both mother and infant. Obviously, breast feeding is the natural way to feed an infant. But that does not necessarily imply that alternative ways are in any way detrimental to the child's development. The breast-bottle issue has suffered for too long from the emotionalism of quasi-scientific theoretical debates—debates most often conducted in the absence of clear empirical data. The ultimate judgment on this issue can only be rendered after sufficient careful research is conducted. In the meantime, the most important consideration appears to be how the mother feels about it. If she is relaxed and enthusiastic about breast feeding, both she and her infant will likely benefit from the experience. If she is nervous or anxiety ridden, it is unlikely that either she or her infant will gain much satisfaction.

Another important aspect of the feeding situation is determining *when* to feed. Mothers who place their infants on a strict schedule, feeding their infant "on time" whether the infant is ready to feed or not, tend to be very rigid, controlling, and cold in their general orientation to their child. Coversely, mothers who are so sensitive to their infant's every movement, fail to properly interpret the infant's needs and stuff him every time he makes a peep. Either extreme, the rigid unbending schedule or the overly indulgent self-demand schedule, may promote long-term ill effects in the mother-child relationship.

Certainly no other aspect of child rearing has received more attention from child-rearing experts, personality theorists, and parents than has toilet training. Much attention is directed to the optimal age for initiating training and to the techniques to be employed in teaching the child mastery of this important biological function. Most mothers in the United States begin toilet training in the age range of 9 months to 20 months. Very generally, the closer the child is to his second birthday, the more rapidly and easily he gains control. Moreover, children for whom toilet training is initiated during the second year tend to have fewer accidents during the succeeding preschool years, so there are some advantages to delaying such training until the child is roughly 18 months old or even slightly older. Perhaps even more important to the child's personality formation is the severity of toilet training. For example, the more cold, aloof, threatening, and punitive such training is, the more emotionally upset the child will be and the more difficulties he will experience in gaining control. Under such circumstances children often use this bodily function to strike back at their parents, knowing full well that accidents can frustrate parents just as parents frustrated the child during initial training. Although the child may suffer in his developing concept of self from severe toilet training practices, there is little empirical evidence to suggest that severe toilet training induces long-term damage in parent-child relationships. Here again, however, is an area of child development that has received its fair share of theoretical discourse but little empirical study.

Label each of the following statements as true or false.

________1. Little is known about the effects of prechild attitudes of parents on the quality of later parent-child relationships.

________2. The most important criterion for determining whether a mother should breast-feed her baby or not is the mother's attitude.

________3. Mothers who are sensitive to their infant's every movement and feed the child whenever he cries establish a close and desirable mother-child relationship.

________4. Delaying toilet training until a child is 18 months old or older may have serious personality consequences for the child.

Now turn to Answer Frame 2^{17} on page 116 to check your answers.

Frame 3^{17}

Parental attitudes and children's behavior. The most casual perusal of the literature on the effects of parental attitudes on the child's behavior and personality development would quickly overwhelm one searching for clear-cut advice on optimal child-rearing practices. The complexities of parental behavior and attitudes, children's behavior and attitudes, and the rich variation in environmental settings in which they interact combine to produce such enormous variation in these variables that clearly one of the most challenging tasks for the developmental psychologist is to partial out the significant effects for the child's behavior from those that are of little consequence.

Research in this area has taken one of several forms: *(a)* parental reports of their behavior have been correlated with children's behavior, *(b)* children's reports of their parents' behavior have been correlated with the child's actual behavior, *(c)* parents and children have been studied independently, and *(d)* parent-child interaction has been directly manipulated in the laboratory. In each of these procedures, correlational techniques are generally employed in data analysis. Depending upon the specific magnitude of the particular study (i.e., the number of variables studied), literally hundreds of correlations can be obtained, each of which may or may not indicate the presence of a significant relationship between parent behavior and child behavior.

Presentation of such data is at best unwieldy. Consequently, several conceptual models of parent effects have been proposed to facilitate the organization and presentation of these complex interrelationships. One of these, Schaefer's three-dimensional model for parent behavior, is illustrated in Figure

Answer frame 2^{17}

1. True. Parents have children for a variety of reasons. Some reasons reflect a true desire to love and care for a child, others are more selfishly motivated. The long-term effects of these attitudes have not been systematically studied.
2. True. Until we have more conclusive data, the most important consideration is the mother's attitude. If she is relaxed and enthusiastic about breast feeding, both she and the baby will likely benefit from the experience. If she is anxiety ridden, the experience will probably benefit neither.
3. False. Mothers who are overly sensitive or insensitive to their child's demands may promote long-term ill effects in the mother-child relationship.
4. False. There are several advantages to delaying toilet training until a child is 18 months or older. In the first place, the child will probably learn much faster. Secondly, children for whom toilet training is initiated during the second year tend to have fewer accidents during preschool years. Finally, delaying training until the child is ready to learn puts less of a strain on parents and may lead to better parent-child relations.

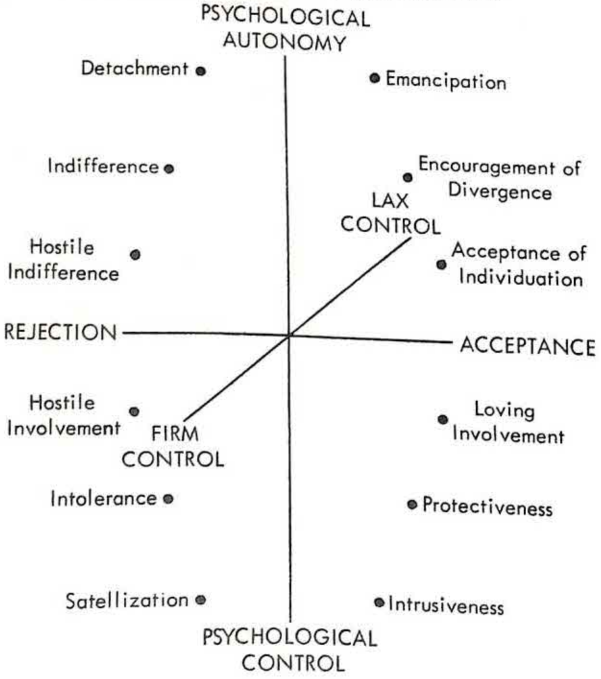
If you missed any of the above, you should reread Frame 2^{17} before turning to Frame 3^{17} on page 115.

Frame 3^{17} continued

17.1. As indicated in this figure, three major factors or dimensions are proposed along which one can order various aspects of parent behavior. Correlations are ordered along these axes providing a picture or map of the interrelationships among the various parent behavior variables in a particular study.

FIGURE 17.1

A three-dimensional model for parent behavior



Reprinted from E. S. Schaefer, "A configurational analysis of children's reports of parent behavior." *Journal of Consulting Psychology*, 1965, 29, 552–57. With permission of the author and the American Psychological Association, Inc.

As indicated in the figure, acceptance-rejection is one continuum along which parents' behavior can be ordered. The *acceptant parent* is one who is devoted to the rearing of his child, participates in his games, shows interest in his school activities, encourages his child and speaks positively of him, accepts and trusts him, and in general provides a warm and loving home environment for him. This parent tends to have a child who is inquisitive, independent, capable of holding responsibilities, and low in antisocial aggression. The *rejectant parent* is one who shows little interest in his child's activities, nags and uses excessive verbal punishment, is critical of the child and tends to ridicule him when he makes mistakes, frequently uses excessive physical punishment, and in general is hostile, aggressive, and neglectful. This parent, tends to have a child who is highly dependent, hostile and high in antisocial aggression or withdrawn and quite submissive, and who in general uses many forms of negative attention-seeking behavior in order to receive some form of attention from his parents even if that attention is negative. Of course, between the extreme accepting parent and the extreme rejecting parent are the vast majority of parents who are sometimes accepting and sometimes rejecting. Models such as that depicted in Figure 17.1 can be helpful in identifying precisely where along the continuum specific parents lie.

Parental child-rearing climates. Parental child-rearing patterns have been variously categorized as democratic, laissez faire, permissive, authoritarian, and so on. For illustrative purposes, an adaptation of Baumrind's distinction among three familial child-rearing climates as a function of the degree of parental control exercised along seven conceptual child-rearing dimensions is presented in Table 17.1. *Permissive* parents are accepting and nonpunitive, expect their children to participate in decision making, foster the development of internal control, and use reason to accomplish their child-rearing goals. *Authoritarian* parents are controlling and punitive, value obedience, and hold absolute standards for their children's behavior. *Authoritative* parents behave in many ways quite similarly to permissive parents but play a greater directive role in regulating their child's behavior. Note that no inference is drawn among these three parent control climates concerning the parents' love for their children. That is, the fact that parents may be authoritarian implies nothing concerning the love they may have for their children; they may be very loving indeed. The relationships summarized in Table 17.1 are far more complicated than they appear at first glance because they can vary within a family between parents and among different children. Thus, one parent may be authoritarian while the other may be permissive, or parents may tend to be authoritative with one child (e.g., a firstborn male) and permissive with another (e.g., a second-born female). You are, perhaps, beginning to appreciate the complex relationships developmental psychologists must deal with in their attempt to isolate significant parental influences on the child's development.

TABLE 17.1

Parent control dimensions	*Familial climate*		
	Permissive	*Authoritarian*	*Authoritative*
1. Disciplinary style: punitive	Low	Variable	Low
2. Disciplinary technique: use of withdrawal of love	Variable	Variable	Low
3. Uses reason and encourages verbal give and take	High	Low	High
4. Enforces demands for socially desirable behavior in home	Low	High	Moderate
5. Restricts autonomy	Low	High	Moderate
6. Power assertion	Low	High	Moderate
7. Rule enforcement	Low	High	High

Adapted from material in D. Baumrind, "Effects of authoritative parental control on child behavior," *Child Development*, 1966, 37, 887–907.

Label each of the following statements as true or false.

________1. The literature on the effects of parental attitudes on children's behavior clearly indicates the most effective child-rearing patterns.

________2. Conceptual models of parental effects have facilitated the organization and presentation of the complex interrelationships involved.

________3. Most parents may be placed at the extremes of the acceptant parent–rejectant parent continuum because they are either devoted to their child and show interest in him or reject him almost completely.

________4. Authoritarian parents, who value obedience and hold absolute standards for their children, obviously do not love their children as much as permissive parents who are accepting and nonpunitive.

Now turn to Answer Frame 3^{17} on page 118 to check your answers.

Frame 4^{17}

Socioeconomic class correlates of parental child-rearing practices. One of the earliest studies to examine the effects of socioeconomic class membership on child rearing, created a picture of the middle-class mother as a demanding, punitive, and rigid individual whose children were likely to be anxious, easily frustrated, and highly dependent. Shortly thereafter, another study painted quite a different picture. This study found the above characteristics of the middle-class mother to better describe the lower-class mother than the middle-class one. On the other hand, no differences as a

Answer frame 3^{17}

1. False. The complexities of parent-child behavior and attitudes and the environmental differences among families make it very difficult to determine what effect parental attitudes have on children's behavior.
2. True. For example, Shaefer's three-dimensional model for parent behavior has three major factors along which one can order various aspects of parent behavior.
3. False. The vast majority of parents are sometimes accepting and sometimes rejecting. One parent may be accepting and the other rejecting and so forth. The relationships thus may become quite complex and are by no means simple and obvious.
4. False. Some authoritarian parents may love their children much more than some permissive parents. Parental child-rearing patterns do not necessarily reflect their love for their children.

If you missed any of the above, you should reread Frame 3^{17} before turning to Frame 4^{17} on page 117.

Frame 4^{17} continued

function of class membership were found in such matters as feeding practices or in the use of such punishment techniques as isolation or withdrawal of love.

How do such parent variables find expression in children's behavior? Considering the studies contrasting middle and upper-class children to lower-class children, the following general pattern of behavior has been found to be descriptive of the lower-class children: *(a)* poor self-concept, *(b)* sense of powerlessness and subject to external control, *(c)* deficient in ability to delay gratification, *(d)* less verbal and have difficulty with cognitive skills, and *(e)* set unreasonable aspirations.

Relatively few attempts have been made to directly study the effects of social class on parent values. Those that have, suggest that one major difference between mothers in these two classes is the extent to which they reinforce conformity to externally imposed standards of behavior. Middle-class mothers tend to encourage their children to develop internal standards for their behavior, while lower-class mothers are more likely to demand that their child conform to externally imposed standards. Currently, the composite pattern of the middle-class mother reveals one who is more nurturant and achievement oriented than is the working-class mother. The working-class mother, on the other hand, is more likely to use physical punishment and to demand obedience than is her middle-class counterpart.

Although the final word has by no means been written on the effects of socioeconomic class membership, it seems that mothers' satisfaction with their perceived role is an important consideration. Mothers who are satisfied with their role are generally more effective in their child-rearing practices and derive greater satisfaction from their maternal role than do nonsatisfied mothers, and these effects seem to be independent of the mother's socioeconomic class membership.

Father-child relations. On the whole, child psychologists have accorded a rather insignificant role in the child's rearing to the father. Note for example, nearly all of our previous discussion of parent-child relations has really been a discussion of mother-child relations. Indeed, most reviewers of parent-child relations research fail even to mention the father as a member of the family unit let alone as an influential variable in child rearing. Nevertheless, what research evidence there is suggests that father does indeed play a significant role in child rearing. At least fathers seem to think that they do! Studies that directly examine fathers' attitudes toward their child-rearing impact show that their self-perceptions differ markedly from the cultural stereotypes of father as an unfriendly, punitive, aggressive, and threatening member of the family whose primary contribution is earning money. They perceive themselves as playing an important role in child-care duties and in providing companionship for their children. Interestingly, they did not ascribe importance to providing a masculine model for their sons. Having reviewed the literature on the father's role in development, Nash concluded that *(a)* the quality of the father-son relationship may be an important factor in the etiology of delinquent behavior, *(b)* that appropriate same-sex identification (daughter to mother; son to father) is an integral defense against psychosexual difficulties such as homosexuality, and *(c)* that there is evidence to suggest that there is a critical period for establishing an affectional relationship with father—a period Nash suggests begins shortly after the critical period for maternal attachment and that lasts until the child enters school. As more investigators begin to include fathers in their studies of parent-child relationships we are likely to discover surprising father effects on the child's development.

True or false?

_______1. Studies of the effect of socioeconomic class membership on child rearing have produced inconclusive and conflicting results.

_______2. Middle-class mothers tend to encourage their children to develop internal standards for their behavior.

_______3. Regardless of social class, mothers who are satisfied with their role are generally more effective in their child-rearing practices and derive greater satisfaction from their maternal role than do nonsatisfied mothers.

_______4. The role of the father in child rearing deserves much more attention in developmental literature.

Now turn to Answer Frame 4^{17} on page 120 to check your answers.

Answer frame 4[17]

1. True. However, the following general pattern of behavior has been found to be descriptive of lower-class children: *(a)* poor self-concept, *(b)* sense of powerlessness, *(c)* deficient in ability to delay gratification, *(d)* less verbal, and *(e)* set unreasonable aspirations. Such results need further verification and analysis before final conclusions can be drawn.
2. True. On the other hand, lower-class mothers are more likely to demand that their child conform to externally imposed standards.
3. True. Mothers who are satisfied with their role are generally more effective, and these effects seem to be independent of the mother's socioeconomic class membership
4. True. Nash reviewed the literature and concludes that the quality of the father-son relationship may be an important factor in delinquent behavior, that son to father sex identification is an integral defense against psychosexual difficulties, and that there is a critical period for establishing an affectional relationship with the father.

If you missed any of the above, you should restudy Frame 4[17] before beginning Chapter 18.

chapter 18

PEER AND SIBLING RELATIONS

Frame 1[18]

In the first two years of the child's development, contact with adults exceeds his contact with peers. The six-month-old's typical reaction to his same-age peer is usually restricted to a simple recognition that the other child is present; the two do not, however, engage in mutual interaction. On the other hand, by one year of age, one can observe rudimentary forms of peer social interaction. One method used to study these early social interactions has been called the *baby party technique.* If you have ever attended a birthday party for a one-year-old, you may have observed that shortly after the party has begun nearly all the children are either irritable or crying. Such behavior is due in part to the presence of too many adults. In fact, throughout the preschool and early elementary years the presence of more than two adults is correlated with increased irritability in children. In the baby party technique one controls for the multiple adult presence factor by eliminating adults for direct interaction with children—unless, of course, such interaction is the focus of one's study. Using a playpen especially constructed to comfortably house several toddlers, and viewing them through observation windows, one can gain rich observational data of peer interaction uncluttered by the presence of adults. Conversely, one can introduce adults into the situation in order to directly study their effect on the children's behavior. Studies using the baby party technique have shown that when one-year-olds do in fact interact, much of their interaction involves conflict over the use of available toys.

Peer interaction during early childhood. It is during the preschool years (from two to five) that peer social interaction diversifies and true mutual give and take between children can be observed. First friendships are established, cooperative play increases, and various types of peer groupings make their appearance. The development of social interaction from individual activity to group activity was studied by Parten while two- to five-year-old children were at play in a nursery school setting. Social interaction in play was preceded by three types of noninteractive behavior: *unoccupied play* (the child is not engaged in any particular task), *solitary play* (the child plays alone), and *onlooker behavior* (the child watches other children playing but does not participate). True social interaction appeared first as *parallel play* in which children play alongside one another but not with each other. The highest forms of social behavior were labeled by Parten, associative and cooperative play. In *associative play* children actively interact with one another, especially showing an increase in sharing and a decrease in conflict behavior. *Cooperative play* is organized activity with children working together to achieve commonly held goals.

The nursery school is an excellent natural setting for the study of many facets of early peer interaction. Nursery school experience aids the child in his interpersonal skill development, providing a supportive environment to foster self-understanding as well as understanding and acceptance of others. Moreover, the nursery school staff helps the child to learn alternative ways of expressing his negative emotions, primarily by strengthening his feelings of competence and by expanding his range of interests.

Studies of peer interaction in the nursery school have focused on such behavior as playmate selection, racial awareness, aggression, quarreling, and competitiveness. In one study of the variables that influence playmate selection, both black and white nursery school and kindergarten children were asked to express their choice of desired playmates. Choices varied as to sex, race, and facial expression. Although sex was the most important determinant of playmate choice, for both races, preferences for playmates of the same race increased with age. Sex does not, however, seem to be as important a determinant of friendships at this age level as it is for the elementary age child. Although some two- to five-year-old children establish same-sex first friendships, the majority of first friendships are formed on the basis of criteria other than sex.

Indicate whether each of the following statements is true or false by writing "T" or "F" in the space provided.

_______1. By the age of one, a child begins to show rudimentary forms of peer social interaction.

_______2. It is during the preschool years (from two to five) that peer social action diversifies and true mutual give and take between children can be observed.

_______3. The competitive environment of nursery school retards a child's interpersonal skill development, and he learns to be watchful with others.

_______4. Kindergarten children use race as the primary basis for selection of playmates in interracial schools.

Now turn to Answer Frame 1[18] on page 122 to check your responses.

Frame 2[18]

Studies of racial awareness indicate that the three-year-old readily discriminates among children of different racial groups but rarely possesses prejudicial attitudes towards members of other races. By

Answer frame 1^{18}

1. True. Studies using the baby party technique have shown that when one-year-olds do in fact interact, much of their interaction involves conflict over the use of available toys.
2. True. Two- to five-year-olds were studied by Parten who found the highest forms of social behavior at this age to be associate play, when children actually interact, and cooperative play, when children work together to achieve common goals.
3. False. Nursery school experience aids the child in his interpersonal skill development, providing a supportive environment to foster self-understanding and acceptance of others.
4. False. Choices vary as to sex, race, and facial expression, but sex was the most important determinant of playmate choice. However, preferences for playmates of the same race increases with age.

If you missed any of the above, you should restudy Frame 1^{18} before turning to Frame 2^{18} on page 121.

Frame 2^{18} continued

five years of age, however, many children clearly reflect parental prejudicial attitudes. The appearance of such attitudes at so early an age poses a severe challenge to early childhood education specialists to devise curricula, program materials, and staff training experiences so that the child's early educational experience will offer him alternative views to those of his parents.

Competitive behavior also changes with age. One investigator presented children ranging in age from two years to seven years with a block-building task in which the children were to build the prettiest structure or the biggest structure that they could. The youngest children showed little, if any, competitive behavior; but by three years of age competitive behavior was seen in nearly 40 percent of the children, while by six years of age competitiveness was seen in nearly all children. One of the more interesting developmental phenomena is that associated with quarreling. It seems that those children who are most friendly also have the most quarrels; and the more casual the friendship, the fewer the quarrels. As children increase in age, there is a steady decrease in the total number of quarrels but an increase in the intensity and severity of each quarrel. These changes are analogous to those that occur in aggressive behavior. Active physical aggression steadily increases until about the age of five; then the child gradually begins to use the alternative ways of expressing his aggressive behavior learned either in the home or nursery school.

Much of our knowledge of early peer interaction is based on research conducted in the nursery school. For many children nursery school is the setting in which their first social interactions occur apart from those with parents and/or siblings. For many other children, however, the sandlot, street, or housing project is the environment where their first social interactions occur. Unfortunately, we know less about peer interaction under these conditions than we do about such interaction in the nursery school. Moreover, our knowledge of peer interaction in school settings is largely a knowledge of white middle-class peer interaction obtained by white middle-class researchers. A minority representation in behavioral science increases, as the number of lower socioeconomic children in nursery school increases, and as we increase the variety of valid child-rearing environments investigated, much of our current knowledge of peer influences may undergo sharp revision. So keep in mind that in addition to the individual difference variables that characterize all developmental phenomena, there may be additional variables that would restrict generalization of current knowledge of peer influences to all environmental settings.

Label each of the following statements as true or false.

_______1. By five years of age, many children clearly reflect parental prejudicial attitudes toward other races.

_______2. Very little competitive behavior has been observed among children younger than six or seven years old.

________3. It seems that those children who are most friendly also have the fewest number of quarrels.

________4. Much of what we know about early peer interactions may have a distinct white middle-class bias both in subjects studied and in researchers.

Now turn to Answer Frame 2[18] on page 124 to check your answers.

Frame 3[18]

Peer influences during middle childhood. In many cultures children remain an integral part of a close family unit for a longer period of time than do children in our culture. In these cultures significant peer influences occur somewhat later in development than in our culture. On the other hand, some cultures emphasize peer pressure very early in development. For example, the Soviet educational system employs the systematic use of peer pressure as early as the preschool years.

In our culture the absolute amount of time the child spends with his peers or with his parents and the relative influence each will have on his behavior will depend on many factors. Nonetheless, most five- to ten-year-old children show a marked increase in the amount of time spent outside the home and away from direct parental supervision. Understandably then, their behavior, values, and attitudes come under greater and greater peer influence. Through the peer group the child learns social norms for behavior in a group; and through his participation in games he learns the importance of rules, organization, and cooperative behavior. Not only does the child learn to contribute to the group as a follower but he also receives many opportunities to practice his leadership skills. His success and failure experiences with the peer group contribute to his feelings of adequacy, thus affecting his self-concept. Most of the child's early peer groups are informally organized, with few hardfast rules and with rapid membership turnover. Despite the presence of such formal organizations as the scouts or campfire girls, formal structuring of peer groups does not really begin until the junior high years.

Nevertheless, in contrast to his nursery school counterpart, the elementary-age child begins to organize his groups along sex and age guidelines. Where the tomboy was readily accepted into the preschooler's group, the eight-year-old girl is more likely to be rejected by her opposite-sex age mates. Middle childhood is also the point in development when one begins to be concerned with one's status in the peer group. Among fourth graders, popularity seems to be related to either one's masculinity or to one's pleasant disposition. Among the personal characteristics children of elementary age cite as desirable traits in their peers are good looks, friendliness, intelligence, creativity, body size, strength, and athletic ability. Children who are anxious, excessively shy, obese, or rebellious are generally accorded low status in the peer group.

Oftentimes the conflict that arises between parental and peer values is a major source of discomfort for the child. For example, just the presence of more than two adults seems to lead to increased quarreling and irritability in young children. Adults influence peer group relations in other ways too. Nearly everyone has observed the "teacher's pet" syndrome. Sometimes such preferential treatment increases the child's esteem. For example, selectively administering positive reinforcement was shown in one study to be related to increased status ratings by peers. On the other hand, such preferential treatment oftentimes decreases the child's status in the peer group. Adults have altered peer interaction by carefully structuring the situation and by providing a supportive, nurturant atmosphere. One study even showed that arrangements of bunks in a cabin influenced friendship preferences among cabin mates attending a summer camp.

Where adults fail, peers have been shown to play a compensatory role in social development. For example, Anna Freud and Sister Dann found that the intimacy and cohesiveness developed among six young children whose early years of life were spent shifting from one German concentration camp to another was sufficient to ward off psychoses as well as complete social inadequacy. They suggest that

Answer frame 2^{18}

1. True. The appearance of such attitudes at so early an age poses a challenge to educators to devise means to present the child with alternative views to those of his parents.
2. False. By three years of age, competitive behavior was seen in nearly 40 percent of the children in one experiment.
3. False. Children who are most friendly also have the most quarrels. As children increase in age, the number of quarrels lessens but the intensity increases.
4. True. Much of our knowledge of early peer interaction is based on research in nursery schools where knowledge is mostly gathered about white middle-class peers by white middle-class researchers. It is difficult to generalize findings from such circumstances.

If you missed any of the above, you should reread Frame 2^{18} before turning to Frame 3^{18} on page 123.

Frame 3^{18} continued

the peer group served to compensate for parental loss and the bizarre manner of their early rearing. Harry Harlow has confirmed the compensatory aspect of early peer contact in laboratory studies with rhesus monkeys. The animals were reared in maternal absence conditions but were permitted peer interaction. Appropriate social behavior was displayed when these monkeys reached adulthood. On the other hand, monkeys reared in complete isolation showed long-term aberrations in their social behavior.

Label each of the following statements as true or false.

______1. Elementary school children are much like nursery school children in that sex and age differences are of little consequence in choosing friends.

______2. Children from the ages of about 5 to 10 years are not subject to much peer group influence on their behavior, values, and attitudes.

______3. Oftentimes the conflict that arises between parental and peer values is a major source of discomfort to a child.

______4. Where adults fail to provide sufficient social leadership, peer groups may fill the void.

Now turn to Answer Frame 3^{18} on page 126 to check your answers.

Frame 4^{18}

Peer influences during adolescence. What popular magazine has not bemoaned the storm and stress of adolescence and expounded on the antagonistic pressures between parents and peers. Many who have recently been there know full well the estranged relations with parents engendered by parent-peer cross pressures. Much of what popular writers say about parent-peer conflict is true. On the other hand, much is not. Although the adolescent strives for independence from parental control, the road to independence is a difficult one, leading at times to intense feelings of inadequacy, loneliness, and despair. Perhaps that is one reason why adolescents select many peer groups that reinforce parental attitudes and values rather than ones that counter parental values. When the adolescent is troubled by problems with long-term consequences, he is more likely to consult his parents and to rely on their judgment than on that of his peers. On the other hand, for problems of lesser consequence, the adolescent is more likely to follow the advice of his peers. Even in these instances, how influential the peer will be depends on a number of factors including the peer's tendency to be overbearing or submissive and the strength of the friendship established between the adolescent and his peer.

Contrary to both young children and adults, the adolescent readily establishes friendships, seldom prejudging his acquaintances on the basis of such factors as personal appearance. More important variables influencing his friendships seem to be sex, intelligence, socioeconomic class, interests, and vocational goals. In general, the more similarities among adolescents the more likely they are to establish friendships. Moreover, girls tend to establish more intense and dependent friendships than do boys.

In addition to setting standards of social behavior, dress, musical tastes, etc., the peer group provides the adolescent opportunities to refine his social skills, to expand his interests, and to share his feelings with those who have similar feelings. Many of the adolescent's peer groups are impersonal and temporarily organized, usually to promote social interaction. Other groups are more intimate. These groups have been termed *cliques,* while the larger more impersonal groups are referred to as *crowds.* A third type of group, called the *membership group,* is highly impersonal and not really organized at all. For example, all males and all females are members of their respective sexual group. In a study of the development of group formation, Dunphy was able to identify five stages of group formation. The first stage consisted of isolated same-sex cliques. In the second stage same-sex cliques began to interact, thereby marking the beginning of crowd formation. In the third stage, the high status members of the same-sex cliques initiate heterosexual relations with their opposite-sex counterparts. In the fourth stage, fully developed crowds emerge; and in the final stage, opposite sex couples emerge from the crowd to form new cliques. Specific factors that influence peer group membership are interests, hobbies, social and personal maturity, and the extent of heterosexual interest. Without question the peer group is an extremely important variable affecting adolescent behavior. The crucial task for the developmentalist is to isolate the specific nature of these influences and to determine which have lasting consequences for the social and personal development of the adolescent.

True or false?

_______1. Adolescents often select peer groups that reinforce parental attitudes and values rather than ones that counter such values.

_______2. When an adolescent is troubled by problems with long-term consequences, he is more likely to consult his peers than his parents.

_______3. Contrary to both young children and adults, the adolescent readily establishes friendships, seldom prejudging his acquaintances on the basis of personal appearance or other such factors.

_______4. Small intimate peer groups are called crowds, and larger more impersonal groups are referred to as cliques.

Now turn to Answer Frame 4^{18} on page 126 to check your answers.

Frame 5^{18}

Sibling influences. If you have any brothers or sisters you may find it very surprising that for many years developmental psychologists did not place great emphasis on the study of how the child influences the development and behavior of his siblings and how they influence his development. This state of affairs was due in part to the view that parents were the dominant influence on the child's behavior, receiving supplemental help from peers during adolescence. Early studies of sibling effects focused on the factors that distinguish eminent men from those who have not achieved eminence, the factors that account for differences among eminent men, the basic differences between siblings, and the effects of having no sibling at all, that is, on the development of the only child.

Answer frame 3^{18}

1. False. The elementary-age child begins to organize his groups along sex and age guidelines, and opposite sex friends from nursery school may be rejected.
2. False. Through the peer group the child learns social norms for behavior in a group; and through his participation in games he learns the importance of rules, organization, and cooperative behavior.
3. True. Just the presence of two or more adults seems to lead to increased quarreling in young children. Adults also affect peer group relations through selective positive reinforcement and other such behavior.
4. True. Anna Freud and Sister Dann found that the peer group compensated for parental loss in German concentration camps. Harlow supported their findings with his research on rhesus monkeys.

If you missed any of the above, you should reread Frame 3^{18} before turning to Frame 4^{18} on page 124.

Answer frame 4^{18}

1. True. Although the adolescent strives for independence from parental control, he may try to minimize parent-peer cross pressures by choosing peers whose values more closely match those of his parents.
2. False. For long-term problems he is more apt to consult his parents. For problems of lesser consequence, he is more likely to follow the advice of his peers.
3. True. More important variables influencing his friendship seem to be sex, intelligence, socioeconomic class, interests, and vocational goals.
4. False. The more intimate group is called a *clique.* Larger, more impersonal groups are referred to as *crowds.* Highly impersonal, rather unorganized groups are called *membership groups.*

If you missed any of the above, you should restudy Frame 4^{18} before turning to Frame 5^{18} on page 125.

Frame 5^{18} continued

Studies of eminence suggested that firstborn children were more likely to be intelligent, scholarly, and achieving than were later born children. Nevertheless, these studies are partly confounded by the fact that the total number of firstborn children is greater than that of any other ordinal position. Consequently, any difference in scholarly achievement founded on ordinal position should be based on ratios rather than on absolute numbers since by total count, the firstborn will always comprise the larger group. With regard to basic differences as a function or ordinal position, firstborn children compared to later born tend *(a)* to be smaller at birth, *(b)* to mature faster, *(c)* to be taller and heavier during middle childhood, *(d)* to speak more articulately, *(e)* to show greater sensitivity to parental relations, *(f)* to be more affiliative, and *(g)* to use more adultlike forms of aggressive behavior. Firstborn do not seem to be substantially less popular or sociable than later born, although there is some evidence to suggest that later born may be more popular.

More recent research has concerned the relationships among siblings and the direction of effects in sibling relations. For example, firstborn children have been found to exert greater influence on second born than vice versa, and males tend to influence their female siblings more than females influence them. Nevertheless, girls are not without their influences on their brothers. For example, boys with sisters tend to show less interest in active athletic games, while their sisters show more athletic interest. These findings do not hold for boys with brothers and girls with sisters. Interestingly enough, the sex of siblings also seems to affect parental behavior in quite an intriguing way. One study showed that the more male siblings in a family, the higher was the father's score on a test of femininity. On the other hand, the more females in the family, the higher was the father's masculine score.

Several studies have pointed to an interaction between ordinal position and sex of siblings. For example, firstborn females and second-born males tend to be less conforming, less likely to join organizations, and more stable in threatening situations. Firstborn males and second-born females, on the other hand, tend to be more conforming, more likely to belong to social organizations, and less likely to tolerate stress.

In addition to the factors cited above, the study of sibling relations has been hampered by the lack of sophisticated research methodologies and by inadequate statistical procedures for analyzing such complex variables. Multivariate statistical methods have largely overcome the problem of data analysis and research design. One multivariate approach, suggested by Sutton-Smith and Rosenberg, is outlined in Table 18.1, and many of the directional effects noted herein are based on their research.

TABLE 18.1

Methodological factors to be considered in the study of sibling relations*

1. Ordinal position criteria
    a) Ordinal positions
    b) Sex of siblings
    c) Age spacing between siblings
    d) Duration of relationships
2. Developmental criteria
    a) Age of siblings
    b) Age of mother (and father)
    c) Current child rearing fads
3. Family criteria
    a) Family size
    b) Family intactness
4. Cultural criteria
    a) Cross-cultural contrasts
    b) Subcultural contrasts
    c) Socioeconomic class
    d) Demography

*Adapted from material in B. Sutton-Smith and B. G. Rosenbert, *The Sibling*, (New York: Holt, Rinehart & Winston, Inc., 1970)

True or false?

_______1. Developmental psychologists have always placed great emphasis on sibling influences on behavior.

_______2. There seem to be few basic differences between firstborn and later born from the same family.

_______3. Firstborn children have been found to exert greater influence on second born than vice versa, and males tend to influence their female siblings more than females influence them.

_______4. Studies of sibling relations have been hampered by the lack of sophisticated research methodologies and by inadequate statistical procedures for analyzing such complex variables.

Now turn to Answer Frame 5^{18} on page 128 to check your answers.

Answer frame 5^{18}

1. False. It was always assumed that parents were the dominant influence on a child's behavior, and concentrated study on sibling influence is a rather new phenomenon.
2. False. Firstborn children compared to later born tend to be smaller at birth, to mature faster, to be taller and heavier during middle childhood, to speak more articulately, to show greater sensitivity to parental relations, to be more affiliative, and to use more adult-like forms of aggressive behavior. There is some suggestion that later born may be more popular, however.
3. True. Girls do have some influence on their brothers, however. For example, boys with sisters tend to show less interest in active athletic games, while their sisters show more athletic interest.
4. True. However, multivariate statistical methods have overcome some of the problems of data analysis and research design.

If you missed any of the above, you should restudy Frame 5^{18} before beginning Chapter 19.

chapter 19

SCHOOL AND COMMUNITY INFLUENCES

Frame 1^{19}

The child's first day of school marks a significant change in his socialization; it is the time when socialization moves beyond the primary influence of family and neighborhood peers. Now the child spends a substantial portion of each weekday with another adult and with a peer group that was arbitrarily assembled by school administrators rather than selected by the child himself. Most children view their first school experience with mixed feelings. On the one hand, they are excited and eager to discover just what it is that the older children do when they go to school. On the other hand, they are hesitant to leave the security, comfort, and familiarity of their home environment. Some children, particularly those with nursery school and/or kindergarten experience, adjust to school with little difficulty. Others, however, may show reactions ranging from mild separation anxiety to severe and prolonged stress. Because school is such a new experience, some stress is to be expected and occasionally skills the child mastered in nursery school or kindergarten are temporarily "forgotten." Such regression in skills previously mastered is overcome as the child increasingly becomes comfortable and secure with his new teacher, his new classmates, and with the school environment in general.

Many studies have shown school to have a positive influence on the child, for example, increasing his helpfulness, self-control, independence, and responsibility taking. Children also show marked improvement in their feelings of self-confidence and in their ability to get along with peers as a result of the school experience. On the other hand, going to school confronts the child with new sources of discomfort, including those that are associated with being excluded from peer group activities and those that are associated with increased aggressiveness from others. Children from lower socioeconomic classes experience the additional frustration of being exposed to a value ethic and a curriculum designed for the middle-class child. Whether such problems are long term or temporary, of course, determines how influential they will be on the child's social adjustment, his performance, and his social behavior.

When adolescents are asked to evaluate their school experience, activities associated with the peer group generally command greater interest than do academic activities. Despite their emphasis while in high school on peer group activities, nearly half of all high school seniors attend college or some equivalent advanced educational institution. Until quite recently the "typical" student receiving advanced education could be characterized as a white, upper middle-class, firstborn male. This, in part, resulted from a higher dropout rate among high school minority group and lower socioeconomic class students; the "typical" high school dropout being a low socioeconomic class, black male of average intelligence. Changing these gross inequities, of course, requires pronounced changes in the distribution of high-quality educational settings as well as rather drastic changes in the socioeconomic and racial conditions that contribute to unequal educational opportunities.

During the past decade our society adopted as one of its priority goals, the elimination of those conditions that produced differential rates of school failure among various segments of the population. Factors contributing to such failure were attributed variously to genetic inferiority, malnutrition, general poverty, racial prejudice, cognitive deficits, inappropriate curriculum models, and so on. Thousands of children were enrolled in remedial preschool programs (e.g., Headstart) presumably to compensate for deficiencies in their home environments. Although research projects showed that these remedial approaches to compensatory education did produce increments in such things as IQ, the changes were usually dampened when children entered elementary school. Nevertheless, some models for delivering compensatory education to disadvantaged children did prove to have long-term success. These models were based on the concept of *developmental intervention* rather than *remedial intervention.* A fundamental assumption of remedial intervention is that a limited short-term experience can compensate for previous years of unequal educational opportunities. Developmental intervention recognizes that the four-year-old's current behavior cannot be divorced from his previous four years of experience. Consequently, developmental models provide for initial intervention at a very early age (approximately 15 months) and *continued* enrichment to the school age period. Developmental intervention models emphasize the whole child rather than focusing narrowly on one aspect of development, for example, cognition. Moreover, developmental intervention provides a climate whereby one can emphasize and build upon the positive characteristics of disadvantaged children rather than creating the negativistic climate implicit in the very notion of remediation.

Indicate whether each of the following statements is true or false by writing "T" or "F" in the space provided.

_______1. Children who forget the skills mastered in kindergarten because of stress never overcome such regression.

_______2. Many studies have shown school to have a positive influence on a child, for example, increasing his helpfulness, self-control, independence, and responsibility taking.

_______3. Until quite recently, the "typical" student attending college could be characterized as a white, upper middle-class, firstborn male.

_______4. Remedial intervention, where limited short-term assistance is applied to compensate for previous years of unequal educational opportunities, has proved to have the best long-term success.

Now turn to Answer Frame 1[19] on page 130 to check your responses.

Answer frame 1^{19}

1. False. Such regression in skills previously mastered is overcome as the child becomes more comfortable and secure with his new surroundings.
2. True. Children also show marked improvement in their feelings of self-confidence and in their ability to get along with peers.
3. True. The unequal representation of minority groups and women in college is slowly being changed through programs aimed at correcting past inequities in opportunity.
4. False. *Developmental* intervention has had the most success. Developmental models provide for initial intervention at a very early age and continued enrichment to the school age period.

If you missed any of the above, you should restudy Frame 1^{19} before beginning Frame 2^{19} below.

Frame 2^{19}

School serves many functions beyond the obvious one of teaching children basic academic skills. It is the major medium through which cultural values, standards, and rules of conduct are transmitted from one generation to another. It provides a relatively organized and controlled environment where children can gain a respect for the rights of others, can learn to accomplish their goals through cooperation, and can develop a sense of personal competence for dealing with the environment. To a large extent, the school has assumed major responsibility for character building, although its actual role in this aspect of socialization varies from one culture to another. In our culture, parent-teacher organizations have emerged to increase communication, cooperation, and understanding among parents, teachers, and school officials and to increase the continuity of home and school influences on the child. Obviously, these individuals share responsibility for assuring each child in our society the highest quality educational experience possible.

A question of recurrent interest to parents of young children concerns their child's readiness for school. *School readiness* refers to whether or not a child has reached a level of emotional, physical, and cognitive development sufficient to indicate that he is now capable of achieving academic success. In actual practice, readiness is usually defined in one of two ways: either by the child's chronological age (CA) or by his performance on readiness tests. Although readiness as defined by CA is the legal or compulsory age for school entrance, as a definition it fails to take into account many individual factors that may affect the child's potential for successful school adjustment. For example, it does not allow for maturational differences between the sexes. Moreover, CA is insensitive to individual differences in motivation to learn, feelings of competence, ability to tolerate prolonged separation from parents, and differences in socioeconomic class and ethnic group membership, all of which may influence the child's readiness for school. Readiness tests may be one answer to the shortcomings of CA as a measure of school readiness. The readiness assessment approach assumes that some six-year-old children may not be ready for formal instruction, so their school experience should be delayed (an assumption that rarely has meaning in the real world). On the other hand, the readiness assessment approach assumes that some four- and five-year-old children are ready for school, or at least some academic aspects of it, so their experience should be accelerated. Expanded use of assessment techniques to determine when a particular child should enter school would require drastic changes in our current instructional policy, curriculum models, and teacher training. At least one country, Sweden, has found widespread assessment for school readiness to be of great benefit for determining the type of educational experience individual children should receive.

Teachers and the school experience. Teachers influence all aspects of the child's behavior, not merely his academic performance. For example, the frequency and type of reward and punishment used by the teacher can affect the child's desire to learn, his self-concept, and his attitudes toward school and education in general. Children often view teachers as parent substitutes or parent surrogates. As parent substitutes, teachers are expected to act in much the same way that parents do. As parent surrogates, they are viewed as parent ideals, often possessing heroic qualities that children find lacking in their own parents. In general, the most popular teachers, as judged by elementary children and high school and college students, are those who *(a)* are democratic, compassionate, flexible, patient, impartial, encouraging; *(b)* have diverse interests; and *(c)* have a solid command of the knowledge in their subject area.

Teachers are concerned with all aspects of the child, and particularly with those behaviors that interfere with the learning process. In one frequently cited study, teachers rated stealing, destruction of school property, truancy, cruelty, and unhappiness as the five most prominent behavior problems in school children. These ratings were made in 1955 and were compared with similar ratings made in 1926 when the five prominent behavior problems were heterosexual activity, stealing, obscene notes, masturbation, and lying. Thus, there seems to have been a shift in teacher's perceptions of children's behavior problems from an emphasis on sexuality in 1926 to an emphasis on problems involving conflict between children and the institutional character of school itself. (One can't help but think that a survey conducted today would show drug addiction to rank highly.) In neither year, however, did teachers show much sensitivity to the possible underlying causes of problem behavior in young children. Ratings made by what today would be school counselors or school psychologists—called mental hygienists in 1926—sharply contrast with teacher ratings and speak more to the causes of misbehavior than to the actual misbehavior itself. They rated social withdrawal, suspiciousness, unhappiness, resentfulness, and fearfulness as the major problems of school children. If children are happy, have no reason to feel suspicious, resentful, or fearful, they will not socially withdraw and will be psychologically free to develop their creative, academic, and social skills. Increased training in personality dynamics and child psychology would hopefully increase the level of sophistication teachers have regarding the emotional needs of the child, thereby increasing their ability to realize their desire to deal with the "whole" child.

Label each of the following statements as true or false.

_______1. School serves many functions besides the obvious one of teaching children basic academic skills.

_______2. Chronological age is a satisfactory measure of a child's potential for successful school adjustment.

_______3. Teachers have very little influence on a child's behavior other than through academic training.

_______4. Teachers have always been sensitive to the possible underlying causes of problem behavior in young children.

Now turn to Answer Frame 2[19] on page 132 to check your answers.

Frame 3[19]

Instructional materials and curriculum models. In addition to teacher and peer group influences on the school child's social behavior and personality development, the instructional materials used in the classroom and the instructional model or curriculum also affect the child's attitudes toward school, education, and self. The textbook is one such instructional tool that has drawn much recent criticism. Primary grade texts have been criticized for their lack of intellectually stimulating content, their prejudicial biases in favor of the middle class and white race and their failure to accomplish one of the

Answer frame 2^{19}

1. True. It is the majority medium through which cultural values, standards, and rules of conduct are transmitted from one generation to another.
2. False. Chronological age per se does not allow for maturational differences between the sexes. Moreover, it is insensitive to individual differences in motivation to learn, feelings of competence, ability to tolerate prolonged separation from parents, and other such factors.
3. False. Teachers influence all aspects of a child's behavior, not merely his academic performance. Children often view teachers as parent ideals, possessing heroic qualities that children find lacking in their own parents.
4. False. Only recently have school counselors or school psychologists examined the causes of misbehavior. They rate social withdrawal, suspiciousness, unhappiness, resentfulness, and fearfulness as the major problems of school children.

If you missed any of the above, you should reread Frame 2^{19} before turning to Frame 3^{19} on page 131.

Frame 3^{19} continued

principle objectives for which they were designed, that is, for stimulating reading. It has been estimated that in 1965, there were over six million black children reading primers that contained no black children! This is hardly the type of instructional tool one can expect to strengthen the child's concept of himself or his concept of the importance of education. Racism in textbooks is, of course, but one small aspect of the conditions that breed humiliation, loss of self-esteem, poor academic performance, etc.

The development of curriculum models has historically focused on the earlier school years on the assumption that the earlier in development basic skills are mastered, the better prepared the individual will be for subsequent schooling or work. Taken at face value, this assumption is probably quite correct. On the other hand, this assumption does not acknowledge that education in our highly technological culture must be a continuously available service. Women reentering the job market, men and women completing their military service, minority group individuals seeking to expand their occupational choices, all of these individuals and more require and should have available, educational and technical training facilities admission to which would not be contingent upon their previous school experience. Currently, these educational services are provided by colleges, universities, and community or junior colleges in the form of noncredit evening college programs or adult education classes. Growing concern for equality of occupational opportunity for all members of our society suggest that adult education will provide new challenges for the development of innovative curriculum models for delivering educational services. In any event, as noted above, it has been preschool education where curriculum innovation has been concentrated. Three of these models are the Montessori Method, the Bereiter-Englemann Method, and the British Infant School. The Montessori Method is a skill-oriented approach to early childhood education where emphasis is placed on training motor, sensory, and language skills in an organized environment. The Bereiter-Englemann Method is based on principles of instrumental learning and programmed instruction. The British Infant School is strongly influenced by Piagetian theory and assumes that optimal learning occurs in an environment that nurtures each child's natural curiousity and current interests in his environment. Whatever the curriculum model, it is probably safe to say that not all children will respond appropriately to any single model. Thus, variation in curriculum planning and format is a necessary correlate of individual differences in children, their socioeconomic class, their minority group membership, and their individual level of readiness for the school experience.

Is each of the following true or false?

________1. In addition to teacher and peer group influences on the school child's behavior, the instructional materials used in the classroom and the curriculum also affect the child's attitudes towards school, education, and self.

________2. Education should be geared toward the youth of our society exclusively.

________3. Curriculum innovation in the past has been largely concentrated on preschool education.

________4. Growing concern for equality of occupational opportunity for all members of our society suggests that adult education will provide new challenges for the development of innovative curriculum models for adults as well as children.

Now turn to Answer Frame 3^{19} on page 134 to check your answers.

Frame 4^{19}

Development of occupational goals. At some point in time, most of us go to work. How do we choose an occupation? What determines our choice of one occupation rather than another? How does one's occupation relate to the broader scheme of development? Many theorists have offered opinions concerning these questions as well as others relating to occupational decision making. Erikson, for example, sees the crystallization of occupational goals as an important step in the adolescent's resolution of the conflict between identity and role confusion. Ginzberg suggests a three-stage model of vocational development beginning with a *fantasy period* (1–11 years), then a *tentative period* (11 to 17 years), and finally a *realistic period* (late adolescence into adulthood). Similar schemes have been proposed by Havighurst and Super.

Concerning the selection of specific occupations, Henry Borow is outstanding in his insistence that occupational selection is best studied and understood from a developmental perspective. His thesis is that occupational goals have their origins in the family, since it is the family that initially influences the child's self-concept, his need for achievement, and the goals to which he aspires. Roe suggests that parent child-rearing climates (e.g., overprotection, neglect, nurturance) affect the child's self-concept, his motives, and his aspirations which in turn influence his occupational goals. For example, parental rearing practices may determine whether one selects an occupation that brings one into close contact with people or one that provides little daily interpersonal contact. The important point raised here is that one's socialization affects one's occupational goals. Although the relative order of appearance of the agents of socialization may vary for each individual, a hypothetical normative sequence is suggested by the following, listed in order from first influence to last to become influential: parents, siblings, neighborhood peers, neighborhood adults, teachers, school peers, significant community adults (e.g., scout leaders, religious leaders), opposite-sex friends, and eventually one's mate. At the various stages of development each of these agents exerts his relative influence on the individual's sense of competence, his value of and need for achievement, and his level of aspiration.

There is strong evidence to indicate that social-class membership also influences occupational goals in that certain occupations and privileges are accorded children in upper classes that are denied children in lower classes. Educational level, which is of course related to socioeconomic class, influences occupational success. For example, in one study comparing high school dropouts with high school graduates, the dropouts were less likely to receive promotions, raises, or additional training than were graduates. Other studies show that the stronger the educational training the more important in one's occupational goals are values such as status recogni-

Answer frame 3^{19}

1. True. Textbooks, for example, may either stimulate or stifle a child's curiosity and interest.
2. False. Women reentering the job market, men and women completing their military service, minority group individuals seeking to expand their occupational choices, and other such groups require and should have available educational and training facilities.
3. True. Three of these models are the Montessori Method, the Bereiter-Englemann Method, and the British Infant School. Each model emphasizes preschool education.
4. True. The challenge of educating and training adults who have missed much of the normal educational processes is perhaps greater than that of developing innovative models for educating the young.

If you missed any of the above, you should review Frame 3^{19} before turning to Frame 4^{19} on page 133.

Frame 4^{19} continued

tion and satisfaction with one's achievements. Moreover, educational level is related to the long-term influence various socialization agents have on the individual's occupational decision making. In a study of where college students turn for career planning it was found that over half of the students turned to their parents for advice with the remaining students splitting advice seeking between school counselors and classroom teachers. Unfortunately, one's race continues in our society to influence occupational opportunities. For example, in 1970 some 50.8 percent of whites held "white-collar" jobs compared to 34.5 percent with "blue-collar" jobs, whereas 27.9 percent of nonwhites held "white-collar" jobs compared to 42.2 percent who held "blue-collar" jobs.

Whether one is reared in an urban or a rural environment also influences occupational selection. For example, many social critics have suggested that suburban middle-class rearing practices emphasize orderliness and conformity and lead to the pattern of behavior labeled the "organization man." Rural living, on the other hand, is said to lead to an insular view of the world, while urban living exposes the child to a more sophisticated culture. Studies of job selection between rural and urban children offer some support to these points of view in that rural children show preferences for agricultural and engineering occupations while urban children prefer the professions and occupations relating to business. Of course we have already alluded to the inner city—with its high rates of crime, delinquency, suicide, etc., and its depressing poverty—as severly restricting the individual's occupational opportunities.

For the adult, one's occupation to a considerable extent influences every other aspect of daily life. One's friends, hobbies, political values, parental practices, and more importantly one's satisfaction with life in general are all related to one's occupation. Consequently, consideration of the factors that influence occupational motives, goals, and aspirations is an extremely important task for developmental psychologists. The complexity of the analysis of this important aspect of human existence is made clear when one considers that occupational goals are influenced by socialization agents (especially parents); one's educational level, social class, racial and ethnic group membership; one's rural, urban, or suburban rearing environment. As our knowledge of the critical factors increases we must accept the challenge of providing innovative training and educational opportunities to expand each individual's ability to make reasonable and knowledgeable judgments about vocational goals, and to expand his occupational opportunities. As our society becomes increasingly technologically sophisticated, the school may yet be called upon to provide instruction in an area that was once a primary responsibility of the home.

True or false?

______ 1. For the adult, one's occupation to a considerable extent influences every other aspect of daily life.

________2. Consideration of the factors that influence occupational choices, goals, and aspirations is an extremely important task for developmental psychologists.

________3. One's socialization has a great effect on one's occupational goals.

________4. A complete understanding of this book will assure the reader of a comprehensive and in-depth understanding of all that is known about developmental psychology.

Now turn to Answer Frame 4^{19} on page 136 to check your answers.

Answer frame 4^{19}

1. True. One's friends, hobbies, political values, parental practices, and satisfaction with life are all related to one's occupation.
2. True. The complexity of the analysis of job factors is made clear when one considers that occupational goals are influenced by one's parents, peers, educational level, social class, racial and ethnic group membership, and one's rural, urban, or suburban environment.
3. True. A hypothetical normative sequence of socialization listed in order from first to last influence is as follows: parents, siblings, neighborhood peers, neighborhood adults, teachers, school peers, significant community adults, opposite sex friends, and eventually one's mate.
4. False. This book is designed to be but an aid to facilitate learning the vast literature that has accumulated regarding human development. It should not be viewed as a replacement for the basic exhaustive textbook in developmental psychology. Hoepfully, it will have aroused your interest in this interesting and challenging area so that you will search further for more information.

If you missed any of the above, you should restudy Frame 4^{19}. Then turn to Examination 3 on page 141, which covers Chapters 13–19.

Examination 1: Chapters 1 – 6

Directions: Answer the following fill-in-the-blank, multiple-choice, matching, and true-false questions. Then check your answers with those appearing on page 143.

1. The _______ - _______ issue refers to the problem of whether the origins or causes of behavior are genetic or environmental.
2. The view that nearly all of human behavior can be explained by environmental factors was advocated by John Watson. This view is referred to as ___________.
3. A bell rings, then a change in illumination occurs. As a result, the pupil of the eye changes its size. If the pupil change occurs when the bell is presented alone (without the illumination change), then the bell is said to be a (an): *(a)* conditional response, *(b)* conditional stimulus, *(c)* unconditional stimulus, *(d)* unconditional response.
4. Classical conditioning is the methodology developed by the behaviorist, B. F. Skinner. (T/F)
5. Evolutionary theory was important in the history of developmental psychology because it linked man to his primate ancesters. (T/F)
6. The foremost objective of developmental psychology is to discover the significant variables that affect development throughout the lifespan. (T/F)
7. In reality, evidence favors the nature position concerning behavioral development. (T/F)
8. Experimental methods of research attempt to specify the degree of relationship between two or more processes. (T/F)
9. The gradual decrease in responding upon repeated presentations of a stimulus is known as ___________.
10. Which of the following is *not* one of the dimensions Crano and Brewer employ to analyze observational techniques? *(a)* acceptance-rejection, *(b)* participant-nonparticipant, *(c)* structured-nonstructured, *(d)* response-restriction.
11. Sexual exploitation of others is a personality trait associated with the phallic stage of psychosexual development. (T/F)
12. The grand prize for resolving the Oedipal conflict is the superego. (T/F)
13. According to Freudian theory, which of the following seeks immediate gratification? *(a)* id, *(b)* ego, *(c)* superego, *(d)* Electra complex.
14. According to Erikson, the first conflict to be resolved in psychosocial development is ___________.
15. The major psychosocial conflict of adolescence is intimacy versus isolation. (T/F)
16. Instead of inferring changes in motivational states as the source of developmental change, social learning theorists speak of processes such as ___________.
17. Adults who show passive, dependent, demanding behavior and habits such as smoking and nail biting are, according to Freudian theory, which of the following personality types? *(a)* anal character, *(b)* oral character, *(c)* phallic character, *(d)* schizophrenic.
18. One of the *major* changes to occur in contemporary psychoanalytic theory involves which of the following concepts? *(a)* ego, *(b)* id, *(c)* superego, *(d)* castration anxiety.

19. According to Piaget, every adaption of structure involves both accommodation and assimilation, although they are not always equally important. (T/F)
20. Conservation of quantity, weight, and volume occur at the same time. (T/F)
21. The ability to conserve usually is acquired by age three. (T/F)
22. When the child reaches the stage of formal operations, he first becomes able to *(a)* recognize object permanence, *(b)* use symbols, *(c)* conserve quantity, *(d)* formulate hypotheses.
23. Piaget developed his theory of cognitive development by emphasizing the study of the product of intelligence. (T/F)
24. The most important accomplishment of the sensorimotor stage of cognitive development is the emergence of *(a)* conservation, *(b)* egocentricism, *(c)* object permanence, *(d)* reversibility.
25. According to Piaget, scientific thinking, self-examination, and hypothesis formulation characterize which stage of cognitive development? *(a)* concrete operations, *(b)* formal operations, *(c)* sensorimotor intelligence, *(d)* pre-operational thought.
26. Trisomy refers to an abnormal alignment of chromosomes. (T/F)
27. Referred to as the period of ____________, this marks the time when the conceptus, if born, stands a reasonably good chance for survival.
28. The major developmental event in the period of the zygote is movement of the fertilized ovum to the uterus. (T/F)
29. The skin, skin glands, nervous system, hair and nails develop from the ectoderm layer of the embryo. (T/F)
30. Phenotype refers to the inferred genetic make-up of the individual. (T/F)
31. The mother's emotional state has no direct influence on the developing conceptus. (T/F)
32. Birth trauma has meaning only in the physiological sense. (T/F)
33. Within a few days after birth, the newborn's olfactory, visual, auditory, tactile, and vestibular systems are functional, although not necessarily at the adult level. (T/F)
34. Rapid eye movements (REMs) gradually increase in amount as the individual increases in age. (T/F)
35. The failure of a reflex to disappear may indicate deficient cortical development. (T/F)
36. Toilet training will probably take the same amount of time regardless of the child's age when it begins. (T/F)
37. Which of the following are characteristics of the newborn infant: *(a)* his appearance, *(b)* his dependence, *(c)* his individuality, *(d)* all of these.
38. At the same time that the height-weight growth spurt is occuring, lymphoid tissue is decreasing in size. This comparison illustrates ________ ________ of growth.
39. The conflicts and stresses of adolescence *Sturm und Drang* are: *(a)* universal, *(b)* dependent upon the biological change of puberty, *(c)* dependent upon social milieu, *(d)* less in industrial than in nonindustrial societies.
40. Adolescence and puberty mean about the same thing. (T/F)
41. Individuals go through the phases of maturation in the same sequence regardless of whether they begin early or late. (T/F)
42. Match the following:

(a) ectomorph	(1) muscular
(b) mesomorph	(2) chubby
(c) endomorph	(3) skinny

43. In general, it is easier to specify onset of puberty for girls than it is for boys. (T/F)
44. Stereotypes relating body build to personality attributes appear as early as age six. (T/F)

Now check your answers on page 143.

Examination 2: Chapters 7–12

Directions: Answer the following fill-in-the-blank, multiple-choice, and true-false questions. Then check your answers with those appearing on page 144.

1. Perception is an active process including the reception and central processing of information as well as the organism's active response to stimulation. (T/F)
2. It has been reliably demonstrated that fetal learning can occur. (T/F)
3. Research in visual perception indicates that the young infant is a rather sophisticated perceptual organism. (T/F)
4. Given the choice between stimuli varying in form and color, first-grade children will in all probability prefer the form stimuli. (T/F)
5. Auditory perception has been as intensively investigated as visual perception. (T/F)
6. Which of the following is the correct development order for the appearance of time concepts: *(a)* present, future, past; *(b)* past, present, future; *(c)* future, present, past; *(d)* present, past, future.
7. Studies of perceptual integration suggest that children are capable of integration during the late preschool years. (T/F)
8. Which of the following factors influence classical conditioning in infancy? *(a)* the infant's age, *(b)* the nature of the UCS, *(c)* the nature of the CS, *(d)* all of these.
9. Operant conditioning has been demonstrated in children as early as *(a)* two-three months, *(b)* six–eight months, *(c)* one year, *(d)* three years.
10. The assumption that one can change undesirable behavior in children by altering the reinforcement contingencies for the child's behavior underlies the practice of *(a)* behavior modification, *(b)* operant conditioning, *(c)* shaping, *(d)* classical conditioning.
11. The major function(s) of drives is (are): *(a)* to reinforce behavior, *(b)* to direct behavior, *(c)* to energize behavior, *(d)* all of these.
12. Learning consists of changes in behavior which occur as a result of experience. Maturation is defined as change in behavior which occurs regardless of differences in experience. (T/F)
13. Learned motives (such as desiring companionship, desiring approval, wishing to excel) are called: *(a)*secondary reinforcers, *(b)* primary drives, *(c)* secondary drives, *(d)* primary reinforcers.
14. In general, both very low levels of arousal and very high levels are associated with *(a)* good performance, *(b)* poor performance, *(c)* intelligence, *(d)* levels of aspiration.
15. If a child makes a response learned for one set of cues when he encounters another similar set of cues, he is showing _______________.
16. Making the same response to two different looking objects both of which have the same name is called *(a)* discrimination, *(b)* acquired equivalence of cues, *(c)* acquired distinctiveness of cues, *(d)* mediation.
17. Transposition occurs when a child responds to *(a)* a difference between cues, *(b)* a similarity between cues, *(c)* a relationship between cues, *(d)* a mediational cue.

18. The older the child, the more easily he learns a ____________ shift.
19. Mediation has been used to help explain which of the following phenomenon? *(a)* transposition, *(b)* acquired distinctiveness of cues, *(c)* reversal learning, *(d)* all of these.
20. Classification skills are well developed by the time a child starts school. (T/F)
21. The production deficiency hypothesis maintains that children have mediating responses but do not use them in the same way that adults do. (T/F)
22. Psychologists have long ago reached an agreement on the definition of intelligence. (T/F)
23. The idea that there is something common to all types of intellectual activity was advanced by Spearman. He called this common property the *g* factor. (T/F)
24. Ideational fluency refers to the ability to produce many different and perhaps unusual responses to a question. (T/F)
25. An individual's IQ is a fixed attribute that changes little with age. (T/F)
26. According to Cattell, fluid intelligence consists of the repertoire of skills which an individual has learned for solving different types of problems. (T/F)
27. Available evidence suggests that all intellectual growth is complete by age 18. (T/F)
28. Validity refers to the consistency with which a test measures what it purports to measure. (T/F)
29. The split-half technique is used to test for *(a)* reliability, *(b)* validity, *(c)* habituation, *(d)* standardization.
30. Face validity refers to the individual's impression of what the test measures. (T/F)
31. Concurrent validity refers to the test items themselves. (T/F)
32. The approach to psychological assessment that suffers most from poor standardization is called the ____________ approach.
33. Tests can be reliable and not valid, but they cannot be valid if they are not also reliable. (T/F)
34. Culture-free tests are so called because of their lack of emphasis on language skills. (T/F)
35. Children's language is grammatical (in the sense that it has structure) by the time the child *(a)* studies grammar in school, *(b)* is four or five years old, *(c)* forms his first two-word sentence, *(d)* says his first word.
36. Both frequency and type of sounds made by babbling infants are retarded if____________.
37. Many theorists, looking at evidence such as the effects of brain injury on language development and language development in the mentally retarded, believe that there is a ____________ ____________ for language acquisition.
38. When studying the acquired distinctiveness of cues, the child is given two similar cues but two different labels. (T/F)
39. Verbal mediation occurs when an individual uses verbal cues to influence the response which ultimately is made after a stimulus is presented. (T/F)
40. Traditional theories of language acquisition have been based on *(a)* psycho-dynamic theory, *(b)* nativistic theory, *(c)* cognitive theory, *(d)* learning theory.
41. The critical period for language is over at approximately age *(a)* 6, *(b)* 13, *(c)* 17, *(d)* 25.

Now check your answer on page 144.

Examination 3: Chapters 13–19

Directions: Answer the following fill-in-the-blank, multiple-choice, and true-false questions. Then check your answers with those appearing on page 145.

1. Behavior patterns, characteristics of a species that occur to specific stimulus events, are referred to by ethologists as fixed action patterns. (T/F)
2. Emotional expression in each individual is a function of *(a)* his rate of maturation, *(b)* his genetic predispositions, *(c)* his rearing conditions, *(d)* all of the above.
3. The infant is only passively involved in his early socialization. (T/F)
4. Each emotion we express has three basic components: ________, ________, and ________.
5. Formal structuring of peer groups does not begin until about age 10 or 12. (T/F)
6. Strong evidence for a genetic component of emotional behavior comes from the study of ________.
7. Harry Harlow's work with primates suggests that there are a variety of systems present to one extent or another in all primate species. These systems refer to which of the following emotions: *(a)* rage, *(b)* aggression, *(c)* fear, *(d)* affection.
8. Identification is important only in early childhood when the child identifies with a parent. (T/F)
9. If a child identifies with someone who threatens him, it is an instance of *(a)* anaclitic identification, *(b)* defensive identification, *(c)* identification based on status envy, *(d)* identification based on power.
10. Available research evidence suggests that the most potent form of identification is described by ________.
11. Observational learning theorists believe that reinforcement is not necessary for a child to learn. (T/F)
12. Which of the following factors affect the effectiveness of a model for observational learning? *(a)* sex of model, *(b)* sex of child, *(c)* power of the model, *(d)* all of these.
13. A child can learn almost anything through observational learning. (T/F)
14. Theorists agree that identification and imitation are the same things. (T/F)
15. Conscience or internalized standards of conduct are clearly evident during the elementary school years. (T/F)
16. The type of parental discipline which is related to weak development of moral restraints is ________.
17. The low incidence of prosocial behavior in the preschool years may reflect the absence of *(a)* conscience, *(b)* moral restraint, *(c)* parental discipline, *(d)* role-taking ability.
18. Prescriptive values stress what a child should do rather than what he should not do. (T/F)
19. Moral judgments based upon the intention of the person judged reflect moral realism. (T/F)
20. Of the following components of a child's developing attitudes and values, which appears earliest? *(a)* good-bad evaluations of terms, *(b)*

understanding of relevant concepts, *(c)* behavior indications such as differential friendship choices, *(d)* conflict with parents over attitudes and values.

21. Firstborn males tend to be more easily influenced by the opinions of others. (T/F)
22. The identity crisis forces the adolescent's attention on the importance of *(a)* peer relations, *(b)* self-concept, *(c)* parent pressures, *(d)* school achievement.
23. An individual's attitudes and perceptions of himself refers to *(a)* identity, *(b)* ego, *(c)* self as process, *(d)* self as object.
24. The notion that we are inherently motivated to develop our capacities to the fullest is represented by which of the following? *(a)* self-centeredness, *(b)* self as object, *(c)* self-actualization, *(d)* ideal self.
25. Persons who see little relation between their behavior and environmental events are said to have *(a)* internal control, *(b)* external control, *(c)* no control, *(d)* self-control.
26. Mothers of field-independent children tend to emphasize conformity. (T/F)
27. In general, early maturing boys are socially advantaged. (T/F)
28. One of the central problems with parent-child research is that it has been too strongly based on maternal influences. (T/F)
29. Children tend to perceive mothers as more threatening and punishing than fathers. (T/F)
30. One of the best words to characterize parent-child relations is *(a)* disasterous, *(b)* unidirectional, *(c)* reciprocal, *(d)* mushy.
31. Concerning scheduled feeding, the evidence supports the use of self-demand feeding. (T/F)
32. Which of the following was not one of Baumrind's descriptions of parent-rearing climates? *(a)* authoritarian, *(b)* laissez faire, *(c)* authoritative, *(d)* permissive.
33. Boys establish more intense and dependent friendships than do girls. (T/F)
34. According to Parten, there is a developmental sequence that characterizes the appearance of social interaction. (T/F)
35. When adults fail, peers have been shown to play a compensatory role in socialization. (T/F)
36. When an adolescent is troubled by problems with long-term consequences, he is most likely to consult his parents rather than his peers for advice. (T/F)
37. One of the major differences between middle-class and lower class mothers is the extent to which they reinforce conformity to externally imposed standards of behavior. (T/F)
38. On the whole, child psychologists have accorded a rather insignificant role to the father as far as child rearing is concerned. (T/F)
39. Firstborn children tend to be less conforming than their later born siblings. (T/F)
40. Regression in skills upon entering first grade seems to be overcome as the child steadily adjust to the school experience. (T/F)
41. Adolescents tend to view peer interactions as less important than academic achievement in school. (T/F)
42. Most children are judged to be ready for school when they are six years old. An alternative criterion for readiness would be *(a)* sex of child, *(b)* readiness assessment, *(c)* social class of child, *(d)* all of the above.
43. Studies of teachers rating of major behavior problems show that their deepest concerns are for the underlying emotional causes of behavior problems. (T/F)
44. Curriculum models and instructional materials used in American schools were designed for all children. (T/F)
45. Which of the following has been found to influence selection of an occupation? *(a)* socioeconomic class, *(b)* parent-rearing patterns, *(c)* race, *(d)* all of the above.

Now check your answers on page 145.

Answers for Examination 1: Chapters 1 – 6

1. nature-nurture.
2. behaviorism
3. *(b)*
4. False. It is operant conditioning.
5. False. It laid the foundation for naturalistic studies.
6. True.
7. False. It favors an interaction between nature and nurture.
8. False. Correlational methods stress relationships.
9. habituation.
10. *(a)*
11. True.
12. True.
13. *(a)*
14. trust versus mistrust.
15. False. Identity versus role diffusion.
16. Any of the following: reinforcement, conditioning, generalization, imitation, socialization.
17. *(b)*.
18. *(a)*.
19. True.
20. False.
21. False. Usually around age six, as it is a phenomena that occurs during the period of concrete operations.
22. *(d)*.
23. False. He emphasized the *process* of intelligence.
24. *(c)*.
25. *(b)*.
26. True.
27. viability
28. False. Embedding in the uterine lining is a major event.
29. True.
30. False. It is the way in which the inferred genetic makeup or genotype is expressed.
31. True. It affects the conceptus indirectly through hormones.
32. True.
33. True.
34. False. They gradually decrease with increase in age.
35. True.
36. False. In general, the older the child the quicker training is accomplished.
37. *(d)*.
38. asynchrony.
39. *(c)*.
40. False. Adolescence refers to interrelated social, emotional, and personal changes, including puberty.
41. True.
42. *(a)* -(3); *(b)* -(1); *(c)* -(2).
43. True.
44. True.

Chapter 7 begins on page 40.

Answers for Examination 2: Chapters 7–12

1. True.
2. False. Evidence is suggestive, but is not reliable.
3. True.
4. True.
5. False.
6. *(a)*.
7. True.
8. *(d)*.
9. *(a)*.
10. *(a)*.
11. *(d)*.
12. True.
13. *(c)*.
14. *(b)*.
15. generalization.
16. *(b)*.
17. *(c)*.
18. reversal.
19. *(d)*.
20. False.
21. False. Production deficiency hypothesis says that children can make mediating responses but are unlikely to do so spontaneously.
22. False. It continues to be defined in several ways.
23. True.
24. True.
25. False.
26. False. It is crystallized intelligence.
27. False, it continues in some ways until old age.
28. False.
29. *(a)*.
30. True.
31. False. It refers to a measure of how well a test correlates with another measure of the same things.
32. projective.
33. True.
34. True.
35. *(c)*.
36. the environment is unstimulating.
37. critical period.
38. True.
39. True.
40. *(d)*.
41. *(b)*.

Chapter 13 begins on page 84.

Answers for Examination 3: Chapters 13–19

1. True.
2. *(d)*.
3. False. He is actively involved.
4. physiological, cognitive, behavioral.
5. True.
6. twins.
7. *(d)*.
8. False.
9. *(b)*.
10. power theory.
11. True.
12. *(d)*.
13. False.
14. False.
15. False.
16. power assertive.
17. *(d)*.
18. True.
19. False, they reflect moral relativity.
20. *(a)*.
21. True.
22. *(b)*.
23. *(d)*.
24. *(c)*.
25. *(b)*.
26. False. They emphasize individuality.
27. True.
28. True.
29. False. Fathers; mothers are seen as friendlier and more nurturant.
30. *(c)*.
31. False, evidence is not clear.
32. *(b)*.
33. False.
34. True.
35. True.
36. True.
37. True.
38. True.
39. False.
40. True.
41. False.
42. *(d)*.
43. False.
44. False, the middle-class child.
45. *(d)*.

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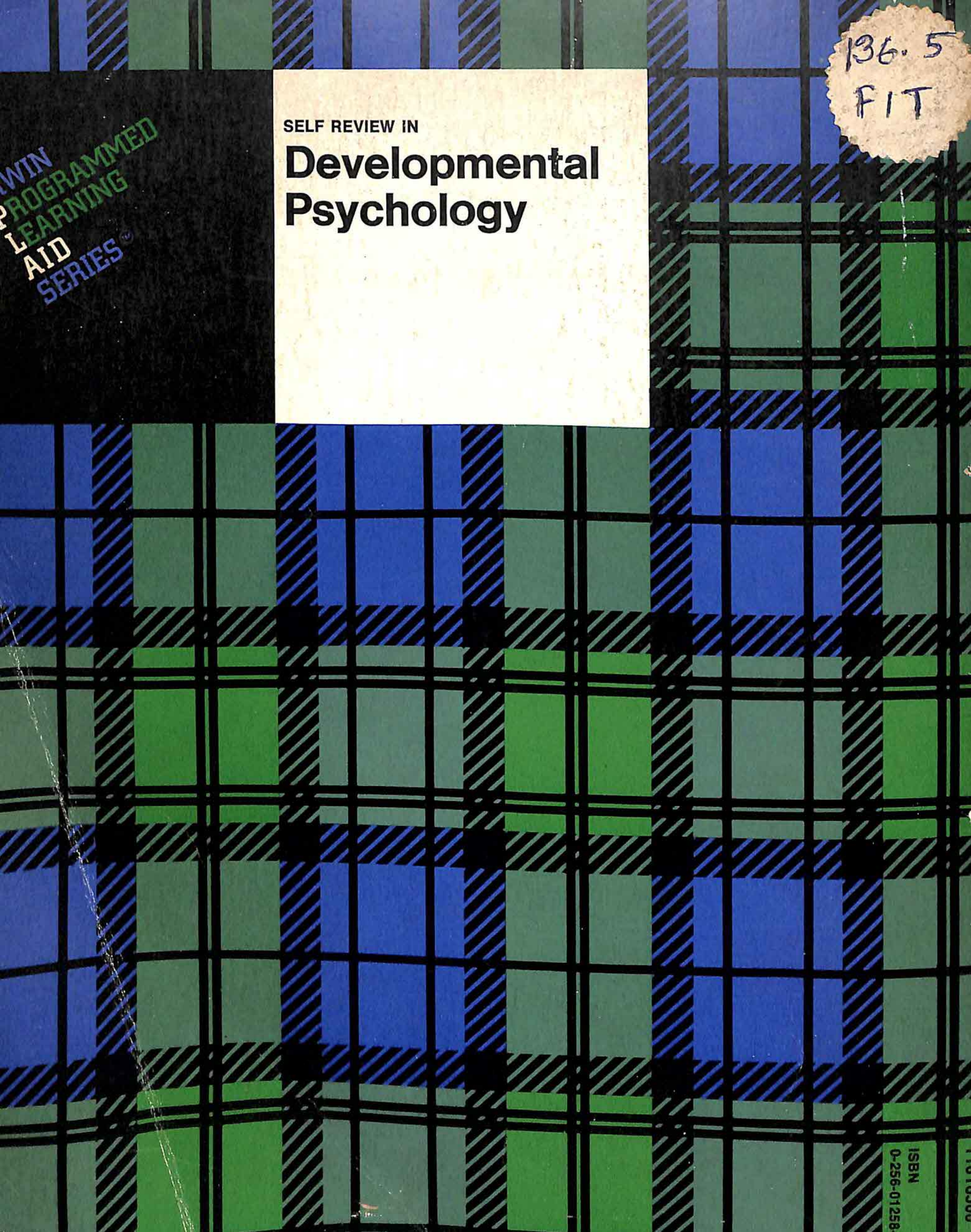

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